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COUNTY BOROUGH OF WARRINGTON.

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ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

SANITARY CONDITION OF WARRINGTON

WITH

TABULAR RETURNS

OF THE

SICKNESS AND MORTALITY DURING
THE YEAR 1907,

ALSO

THE REPORT OF THE INSPECTOR OF NUISANCES
AND THAT OF THE PUBLIC ANALYST.

WARRINGTON:
MACKIE AND CO. LD., GUARDIAN OFFICE.

County Borough of Warrington.

1907-8.

HEALTH COMMITTEE.

Mayor:

JAMES SMETHURST, Esq., J.P.

Chairman:

Mr. Councillor JAMES EVANS, J.P.

Deputy-Chairman:

Mr. Alderman BURTON, J.P.

Mr. Alderman TINNION, J.P.
,, ,, JOHN EVANS.
,, Councillor BARTON.
,, Dr. JOSEPH.

Mr. Councillor SANKEY.
,, ,, STOTT, J.P.
,, ,, WILKINSON, J.P.
,, ,, WILSON.

Town Clerk:

J. LYON WHITTLE, Esq.

HOSPITALS SUB-COMMITTEE.

The CHAIRMAN.
Mr. Alderman TINNION.
,, Councillor BARTON.
,, Dr. JOSEPH.

The DEPUTY-CHAIRMAN.
Mr. Councillor SANKEY.
,, ,, WILKINSON (Convener).
,, ,, WILSON.

OFFICIALS
OF THE
Public Health Department.

Medical Officer of Health, Medical Superintendent of the Corporation Hospitals, and Medical Adviser to the Education Committee :

J. COOTE HIBBERT,

M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Lond.).

Assistant and Deputy Medical Officer of Health :

PRUDENCE E. GAFFIKIN, L.R.C.P. & S. EDIN.

Chief Inspector of Nuisances and Inspector under the Food and Drugs Act :

* WALTER T. FLOOD.

Assistant Sanitary Inspectors :

* JOHN TAYLOR. * JOHN STEVENS.

* JAMES SNAILHAM.

Clerks : JOHN PERCIVAL. ARTHUR ISHERWOOD.

Inspector of Midwives and Health Visitor :

† MISS E. G. PAKES.

Matron of Hospital:

MISS E. LEES.

Public Analyst :

F. G. RUDDOCK, F.I.C.

* Holds the Certificate of the Sanitary Institute.

† Holds the Certificate of the Central Midwives Board.

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PUBLIC HEALTH OFFICE,
BANK HOUSE,
WARRINGTON.

TO THE CHAIRMAN AND MEMBERS OF THE
HEALTH COMMITTEE.

SIRS,—

I have the honour to submit to you my first Annual Report, and in doing so I desire in the first place to express my appreciation of the eminent work that has been carried out by my predecessor, the late Dr. Gornall, to whose untiring energy and administrative ability I am indebted for a thoroughly organised Health Department, with the help of which I hope to continue his labours.

Since Dr. Gornall's death in the early part of the year the work of the Department has been most efficiently supervised by Dr. Prudence Gaffikin till my appointment in the month of August.

As therefore I am still somewhat of a stranger in your midst, I shall confine myself in this report chiefly to tabulating the work that has been done by the Staff of the Health Department during the year, and shall comment only on those conditions affecting the Public Health which in my opinion require urgent consideration, and which with my limited experience of the Borough I feel myself justified in discussing.

VITAL STATISTICS.—The general, the zymotic, and the infantile death-rates all show a marked improvement on those for the previous year. Thus the improvement in this respect, which is evident in most of the large towns of England and Wales, has also shown itself in Warrington, and it will be extremely gratifying to the Committee to find that during the year in which their actions have been much criticised, the chief mortality rates have been the lowest on record. How far the repeated flushing of the town with rain and the accompanying cool weather during the greater part of the Summer are responsible for these results, the statistics for a warmer and drier Summer will show, but at any rate we have here a hint that the thorough cleansing of streets and especially of courts and back passages must be scrupulously carried out. And I would lay down this proposition that, other conditions being constant, the death-rates for any town—and this especially applies to the zymotic and infantile rates—will be high or low according as animal or vegetable refuse is allowed to accumulate in its midst or the converse.

In this organic matter, whether of human origin such as excreta, whether derived in some way from animals (such as manure heaps, refuse from slaughterhouses, or the by-products of offensive trades) or whether consisting of vegetable refuse, we have not only an excellent culture medium for the disease-producing bacteria, but also a fertile breeding ground for flies by which the microbes are conveyed about to their victims. Nowhere is this organic matter a greater danger than in enclosed courts and ill-ventilated back-yards, and very special attention should be paid to the cleansing of and the removal of all refuse from these areas, and as far as possible water-closets should be substituted for pail-closets in these parts of the Borough. At present many dwellings receive their so-called fresh air more or less directly from the atmosphere of the pail-closet, which more often than not in the poorer districts is surrounded by liquid filth which has in some way escaped the pail. The question of converting the present pail-closet into a water-closet system, and of re-sewering the town is, I am quite aware, a very difficult one and is certainly too large a subject for me to bring forward at the present time; but so long as the present system remains, the sanitation of Warrington cannot be said to be satisfactory. That the majority of houses should have a collection of human excreta hard by their back doors and polluting the air of their very larders is surely a blot on modern-day sanitation.

Large middensteads in connection with stables and cowsheds, etc., which now often accommodate two or three months' manure, should be replaced by smaller and properly constructed receptacles.

Areas around dwellings, especially those of the poorer classes, should be kept carefully paved, so that they may be the more easily and thoroughly cleansed.

The danger of dwelling in houses recently built on newly-made land, where the land has been made with material containing much animal or vegetable refuse, must not be forgotten.

Turning now to the chief causes of death (see Table IV) it will be seen that TUBERCULOSIS has claimed the largest number of victims (139). This dread disease during 1907 accounted for $\frac{1}{8}$ of the total number of deaths from "all causes" and yet compared with our action as regards Scarlet Fever, Diphtheria and Typhoid Fever, which together accounted for 32 deaths, or less than a quarter of the number for which Tuberculosis was responsible, we are doing very little to stamp it out. The infection comes from two directions :—

(1) From human beings suffering from the disease, especially where there are discharges, as in tuberculosis of the lungs.

(2) From animals suffering from the disease.

As regards human beings forming the source of infection, it is evident that, until patients affected with the disease cease to scatter the infection by means of their discharges, such as sputum, spread from one person to others who are susceptible will occur.

Since the disease is of long duration compared with other notifiable infectious ailments, it would be impossible to systematically isolate notified cases; but if the disease were made compulsorily notifiable (at least cases where there are discharges) something could be done without interfering much with the liberty of the sufferers, by teaching them how to avoid spreading the infection, and by accommodating in some hospital building advanced cases which could not be properly cared for at their homes and which otherwise would be a danger to their neighbours.

I would urge that the Sankey Sanatorium be not allowed to remain unoccupied, but that it be used for this most important work when not needed for smallpox. A portion of the Sanatorium could also be set aside for the temporary accommodation of less advanced cases in order to teach these how best to combat their disease, and at the same time how to avoid becoming a source of infection to others.

It might be hoped that the instruction in this way imparted and that the practical demonstration thus given at the Hospital would induce sufferers when they return home to live healthier lives—to pay more attention to opening and keeping open their windows and to observing strict cleanliness in their dwellings. It might also serve as a useful lesson in this respect to the public generally.

As regards animals it is most unfortunate that cattle, our chief supply of meat, and especially that cows, the source of our children's chief food, should be so liable to this infectious malady.

To a large extent the community is protected against tuberculous meat by strict inspection and also by the sterilizing effects of thorough cooking, but at present we are far more helpless against the more potent source of infection in the milk. It is impossible for the Health Authority of the Borough to deal effectually with the milk at its origin, *i.e.* at the dairy farms, for most of these are outside the Borough and under the supervision of Authorities who may or may not exercise what powers they have at present for the control of these dairy farms. We have to be content with sampling the milk after it has reached the Borough; and it is only after a bacteriological examination, which takes from 3—6 weeks for its completion, that a mixed supply of milk from any dairy farm can be shown to be tuberculous. The supply from the farm cannot be at once stopped on the strength of a sample, taken 3—6 weeks previously, being found to be tuberculous, for it does not necessarily prove that the milk is tuberculous after the lapse of that period, inasmuch as the offending cow or cows may have left the herd or the infection may have gained entry into the sampled milk after it had left the cow, *i.e.* from those engaged in the milking, &c. Having proved the mixed milk from the farm to be infected, the farm can be visited, and each cow examined by a veterinary surgeon. Further samples can then be taken from any suspected cows and submitted to another 3—6 weeks bacteriological examination, and therefore by this procedure it is as a rule not before 6—12 weeks from our first investigation of a milk supply which proves to be tuberculous that we can cause to be removed from the cowshed the cow or cows which are at fault.

Without waiting for the result of this bacteriological examination of the milk from the individual cow, a veterinary surgeon will rarely give a certificate that an udder, even when showing a suspicious swelling, is affected with tuberculosis. This difficulty also exists when the cow has also reacted to the tuberculin test, for it is then urged that the tuberculin reaction may be due to disease elsewhere than in the udder, that the lump in the udder is due to "cold," and that a cow does not give tuberculous milk unless the udder is affected (it is, however, now recognised that a cow may give tuberculous milk without having evident tubercular disease of the udder). In order therefore to prove that any cow is yielding tuberculous milk we have to wait at present for the result of the bacteriological examination; but I may say that this Committee has stopped the milk in these very suspicious cases, and paid the farmer compensation until the bacteriological result has been obtained.

Even when every care is in this way taken, we detect and deal with but a part of the tuberculous milk supply of the Borough; and a cow which has been shown to give infected milk and turned out of one cowshed, may be sent to another elsewhere to continue its disease-spreading mission. Thus the present difficulty of protecting the community against tuberculous milk is evident; and until there is a serious attempt by the Government to deal with the question generally by forcing uniform and thorough supervision of cowsheds on all Authorities and by eliminating from the dairy farms (compensating the farmer for his loss) all tuberculous cows, whether suffering from diseased udders or not, the best course for us to adopt is to boil all our milk, and to boil it thoroughly.

Another fertile but preventable cause of death is DIARRHŒA. As, however, the greater number of the deaths occur among infants, I will deal with the question under Infant Mortality.

ZYMOTIC DISEASES (*i.e.* Smallpox, Typhoid Fever, Scarlet Fever, Diphtheria, Whooping Cough, Measles and Diarrhœa).

The zymotic death-rate has fallen from 3·1 in 1906 to 2·1 in 1907, the rate for the previous years from 1896 onwards having been as follows :—

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
3·0	2·8	3·2	3·01	2·5	3·8	1·53	3·5	4·6	2·7	3·1

The two diseases under this heading which require chief notice are Scarlet Fever and Diphtheria. (*See Table III.*)

SCARLET FEVER has been especially prevalent, 311 cases having been notified during the year, and 12 of these have been fatal. The disease has therefore not been severe if judged of by its fatality, but this does not take into account the number of sufferers who have recovered but have been left with chronic ear, kidney, and other complications.

The chief point of interest in connection with this disease is that hospital isolation, even when practised as thoroughly as has been done in Warrington during past years, has failed to diminish its prevalence (*see Table and Chart p.* 35). And as a matter of fact the very mildness of the disease is one of the chief causes of its continued prevalence, for a large proportion of the slight cases—cases where perhaps the rash was scarcely visible and only a sore throat complained of—must necessarily escape detection. These cases however are just as infectious as the more severe ones, and by their unrestricted movements, and perhaps by their attendance at school, etc., they spread infection with great ease.

DIPHTHERIA.—78 cases have been notified during the year, and 14 of these have terminated fatally.

It is a curious anomaly that while the death-rates in most towns, including Warrington, from other infectious diseases have diminished with improved sanitation, that for Diphtheria has definitely increased during recent years. The close aggregation together of children in schools is doubtless in part answerable for this increase, and it thus behoves us to be specially careful with regard to the attendance at school of children with sore throats. Fortunately, by the aid of the science of bacteriology, we are able to detect the diphtheritic nature of many of these cases of sore throat which otherwise would be overlooked.

It is also known that patients who have suffered from diphtheria may carry the bacilli in their throats for many weeks or even months after their recovery from all symptoms of the illness; and that, moreover, persons insusceptible to the disease who have been in contact with a case may, without giving any evidence of illness, harbour the bacilli in their throats, and thus serve to spread the infection. A bacteriological examination can alone detect these dangers.

MEASLES has accounted for 58 deaths, nearly all of which occurred in children under 5 years of age. It is very difficult to check the spread of this disease on account of there being at the beginning of the illness and before the rash appears by which the malady is diagnosed, three or four days during which the child is infectious but apparently suffering from an ordinary cold. For this reason Measles is not made compulsorily notifiable, for, even if the cases are notified, they cannot be isolated until they have probably already infected most of those other susceptible children with whom they are likely to come into contact.

The severity of this disease on children under 5 years of age is one of the chief arguments against those under this age attending school where, if the disease is introduced, it will naturally spread rapidly among these especially susceptible children. (These latter remarks also apply to Whooping Cough, which is especially fatal among children under 5 years of age.)

INFANTILE MORTALITY.—288 infants under one year of age have died during the year, this number giving an infantile mortality rate of 122 per 1,000 births. 353 infants under one year of age died during 1906, the infantile mortality rate per 1,000 births for that year being 157.

On comparing Table V. for the two years, which gives the causes of death among these infants, the only notable difference is that there were 100 deaths from Diarrhœa in 1906 and only 32 in 1907. Thus the fall in the number of deaths of infants under one year from 353 in 1906 to 288 in 1907 has been almost entirely due to the smaller number of deaths from Diarrhœa during 1907; and in turn we may ascribe this diminished prevalence of Diarrhœa for the most part to the influence of the wet cold Summer.

Deaths of Infants from Diarrhœa occur almost exclusively among hand-fed babies; and a hot dry Summer increases the likelihood of the infant's artificial food being contaminated and thus causing Diarrhœa, because in such weather

(1) Diarrhœa-causing microbes flourish more abundantly;

(2) Flies and Dust prevail which carry the microbes to the food;

(3) The rain has not played its cleansing part and washed away the organic matter on which the microbes and flies grow.

If each mother were to breast-feed her baby, and to give no other food than her own milk during the first nine months of the infant's life, these deaths from diarrhœa would be for the most part avoided, and the child would be stronger and less liable to succumb to other illnesses.

In dealing therefore with the subject of infantile mortality our first aim must be to see that each child wherever possible is breast-fed; and in order to obtain this necessary condition we must deal with the mothers. Moreover, we should not restrict our actions to the period after the child is born, but should approach the mother as early as possible in her pregnancy and teach her how to prepare herself for motherhood; and if, through poverty, she is unable to procure for herself sufficient or suitable food, we should help to provide it for her. We must try to relieve her of arduous work during the last months of pregnancy, a frequent cause of premature confinement and of a resulting weakly offspring. The lying-in period also must be of adequate duration, for there is no more frequent cause of a mother being unable to suckle her child than the debility and inflammatory conditions which so often follow a shortened lying-in period.

In this way by enabling the mother to suckle her child we shall have attained the first object. It then remains for us to encourage the mother to feed her child solely on her breast milk during the first nine months of its life, and in order that she may be able to do this we may have to continue our practical help for that period.

There will still of course be a number of children who will have to be brought up on food other than their mothers' breast milk, and who will consequently be exposed to many dangers involved in artificial feeding. Such dangers may be minimised by attention on the part of the parents to the advice given by the Official Lady Health Visitor and by the remedy on the part of the Health Authority of all conditions tending to the contamination of the infant's food, foremost amongst which food being of course cow's milk.

In order thus to reach as far as possible the expectant mothers, we must obtain from each midwife a weekly list of women who have engaged her services for their confinements; while the adoption of the Notification of Births Act will give us the long desired means of reaching the children immediately after their birth.

I am not claiming that such efforts as these will solve the many problems connected with the subject of Infantile Mortality for, among other reasons, the sins of the fathers will still be visited on the children even unto the third and fourth generations.

But I have touched on this one very important aspect of the question, because the remedy is simple and obvious. At the same time there may thus be afforded to those voluntary lady workers who desire to render help, an opening for assisting the Health Department in an attempt to lower the infantile death-rate.

UNCERTIFIED DEATHS WITH REGARD TO WHICH NO INQUEST WAS HELD.

No table deserves more consideration than that showing the number of these uncertified deaths (Table *p.* 22). That 20 deaths of infants should be allowed to pass in one year without the ordinary certificate being given by a doctor or a coroner's inquest being held is in my opinion most unsatisfactory. It might be a hardship on parents in the rare instances where a child has died suddenly without giving evidence of the need for a doctor's attendance to have to endure the ordeal of a public enquiry at such a time, but if the inquest were a matter of course in uncertified cases it would carry with it no reflection on the guiltless and it might impress on some careless parents the need of greater care being bestowed on their children.

HOUSING OF THE WORKING CLASSES ACTS.

The dealing with insanitary property under the above Acts has of necessity been somewhat neglected during the year. Proceedings under the Acts must be taken by the Medical Officer of Health, and both the Deputy Medical Officer of Health during her temporary time of office, and myself during the first few months of office and before I had become familiar with the Borough as a whole, have not cared to take on ourselves this responsible duty.

The returns given in Table *p.* 47, which were specially prepared for this Committee towards the end of the year, point to the need, if indeed evidence in that direction is necessary, of energetic action with regard to all slum areas, and I hope that the next Annual Report will be able to show a summary of active work in this respect.

SLAUGHTER-HOUSES.—During the latter part of the year the question as to the advisability of building a public slaughter-house, to replace the private slaughter-houses at present existing in the various parts of the Borough, was discussed by the Committee, but the course to pursue has not yet been fully determined on.

There is no doubt that the establishment of a public abattoir, and the closing of the private slaughter-houses would facilitate the inspection of meat killed within the Borough, and would minimise the nuisance almost inseparable from the slaughtering of animals by substituting for that purpose one establishment suitable in structure and position in place of the many now existing which are more or less unsuitable in these respects. But it must be remembered that the meat supply of Warrington, independently of that imported from abroad, is not by any means entirely derived from carcases which have been dressed in the slaughter-houses within its own boundaries, and that, so long as adequate supervision of slaughter-houses is not enforced uniformly throughout the country, the public will not be successfully protected from diseased meat merely by the establishment of a public abattoir within the Borough.

The danger to the public from meat slaughtered within the Borough is I believe small, partly because inspection is stringent, and partly because the butchers almost invariably notify the Inspector if they find on dressing a carcase that it is diseased or in a doubtful condition ; and it is but fair to point out that the loss involved by the destruction of a diseased carcase falls at present almost entirely on the butchers. On the other hand many of the existing slaughter-houses are in an unsatisfactory condition, and some require closure, whatever the final decision on the main question may be.

No doubt the sanitarian demanding the ideal would urge upon you many other and more drastic reforms in order to secure a perfectly hygienic Borough ; but, being aware how wide a gap often exists, especially in Public Health work, between the ideal and what is practicable—between what is desirable and what is possible—I have refrained from bringing forward at the present time any subject but what requires your more immediate attention, and from offering any suggestions but what I hope can be put into practice.

In conclusion, I would like to acknowledge my indebtedness to Inspector Flood, not only for the valuable information with which his thorough knowledge of the Borough has enabled him to supply me, but also for the readiness with which he has been ever willing to render me his assistance.

I am, gentlemen, your obedient servant,

J. COOTE HIBBERT.

SECTION I.

Vital Statistics.

SUMMARY.

Population (estimated to middle of 1907) ...	71,849
Population at Census, 1901	64,242
Population under 10 years of age at Census of 1901	16,889
Area of Borough (acres)	3,115
Density of population (*i.e.* number of persons per acre)	23
Number of houses in occupation (middle of year)	13,672
Number of houses not in occupation do. ...	379
Number of houses built during the year ...	190
Estimated average number of persons per house	5·2
Number of births (males, 1,155; females, 1,201)	2,356
Birth-rate per 1,000 living	32·7
Number of deaths (576 males, 554 females) ...	1130
Death-rate per 1,000 living (corrected) ...	15·7
Excess of registered Births over Deaths ...	1,226
Number of Marriages	584
Marriage-rate per 1,000 living	8·1
Death-rate from seven chief Zymotic diseases per 1,000 living	2·1
Phthisis Death-rate per 1,000 living... ...	1·29
Death-rate per 1,000 from other forms of Tuberculosis	·654
Death-rate from all forms of tubercular diseases, including phthisis	1·9
Death-rate from diseases of respiratory organs other than Tuberculosis...	2·9
Infantile Mortality-rate (*i.e.* death-rate of children under one year per 1,000 births)	122

Comparison of the Birth-rate, the General, Zymotic and Infantile Death-rates of Warrington, with those of England and Wales, for the year 1907.

	Annual rate per 1,000 living.										
	Births.	Deaths.	Principal Epidemic Diseases Cols. 4-10.	Smallpox.	Measles	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Deaths of Children under 1 year per 1,000 births.
	1.	2.	3.	4.	5.	6.	7.	8.	9	10.	11.
England and Wales	26·3	15.0	1·26	0·00	0·36	0 09	0·16	0·29	0·07	0·29	118
76 great towns ..	27 0	15·4	1·54	0·00	0·43	0 12	0·17	0·35	0·07	0·40	127
142 smaller towns..	25·7	14·5	1 29	0·00	0 41	0·08	0·15	0·29	0·07	0·29	122
England and Wales less the 218 towns	25·6	14·7	0·91	0·00	0·25	0·06	0·15	0·21	0 06	0·18	106
Warrington ..	**32·7**	**15·7**	**2·1**	**0·00**	**0·80**	**0·16**	**0·19**	**0·15**	**0·08**	**0·55**	**122**

POPULATION.—As in previous years, the population has been estimated by enumerating the number of occupied houses in the Borough at the middle of the year, and by allowing the same average number of persons per occupied house as were found at the Census of 1901. By this method the population at the middle of the year is estimated to have been 71,849.

The Registrar-General bases his calculations upon a somewhat lower figure, viz. :—that obtained by adding for each year since the census of 1901, a tenth of the total increase during the previous decennium. By so doing his rates work out higher, as the following will show :—

	Birth-rate per 1.000	Death-rate per 1.000
On Registrar-General's Population	33·5	16·08
On Population on my estimate ...	32·7	15·7

RETURN SHOWING THE NUMBER OF DWELLING-HOUSES AND LOCK-UP SHOPS OCCUPIED AND UNOCCUPIED ON JULY 15TH, 1907:

	Occupied.		Unoccupied.	
Ward.	Houses.	Lock-ups.	Houses.	Lock-ups.
Town Hall	985	23	149	5
Whitecross	1,732	35	16	2
Bewsey	1,004	25	9	—
Orford	1,647	53	9	1
St. John's	2,099	49	32	1
Fairfield	1,687	57	18	2
Howley	1,290	35	76	3
St. Austins	1,164	52	87	4
Latchford	2,064	50	22	1
	13,672	379	418	19

LIST SHOWING THE NUMBER OF NEW DWELLING-HOUSES PASSED FOR OCCUPATION IN EACH WARD OF THE TOWN FOR THE YEAR 1907:—

Orford	57
Latchford	46
Whitecross	53
Fairfield	16
Bewsey	10
St. Austin's	8
Total	190

MARRIAGES.—There were 584 marriages during the year, the marriage-rate per 1,000 population being 8·1. In 1906 there were 650 marriages, and a marriage-rate of 9·2.

BIRTHS.—There were 2,356 births (males, 1,155; females, 1,201), a number exceeding that for the previous year by 108. The birth-rate is 32·7 as against 31·9 for 1906. The average of the ten years, 1897 to 1906 was 35·4 per 1,000. It is to be noted that the general birth-rate for England and Wales continues to diminish, this being 26·3 as against 27·0 in 1906.

DEATHS.—1,167 deaths were registered as occurring in the Borough during 1907. Of these 224 occurred in public institutions, as follows:—

In the Infirmary	43	224
In the Workhouse	158	
In the Fever Hospital	23	

Forty-eight of these deaths were of persons belonging to other districts, viz.:—

In the Infirmary	4	48
In the Workhouse	39	
In the Fever Hospital	5	

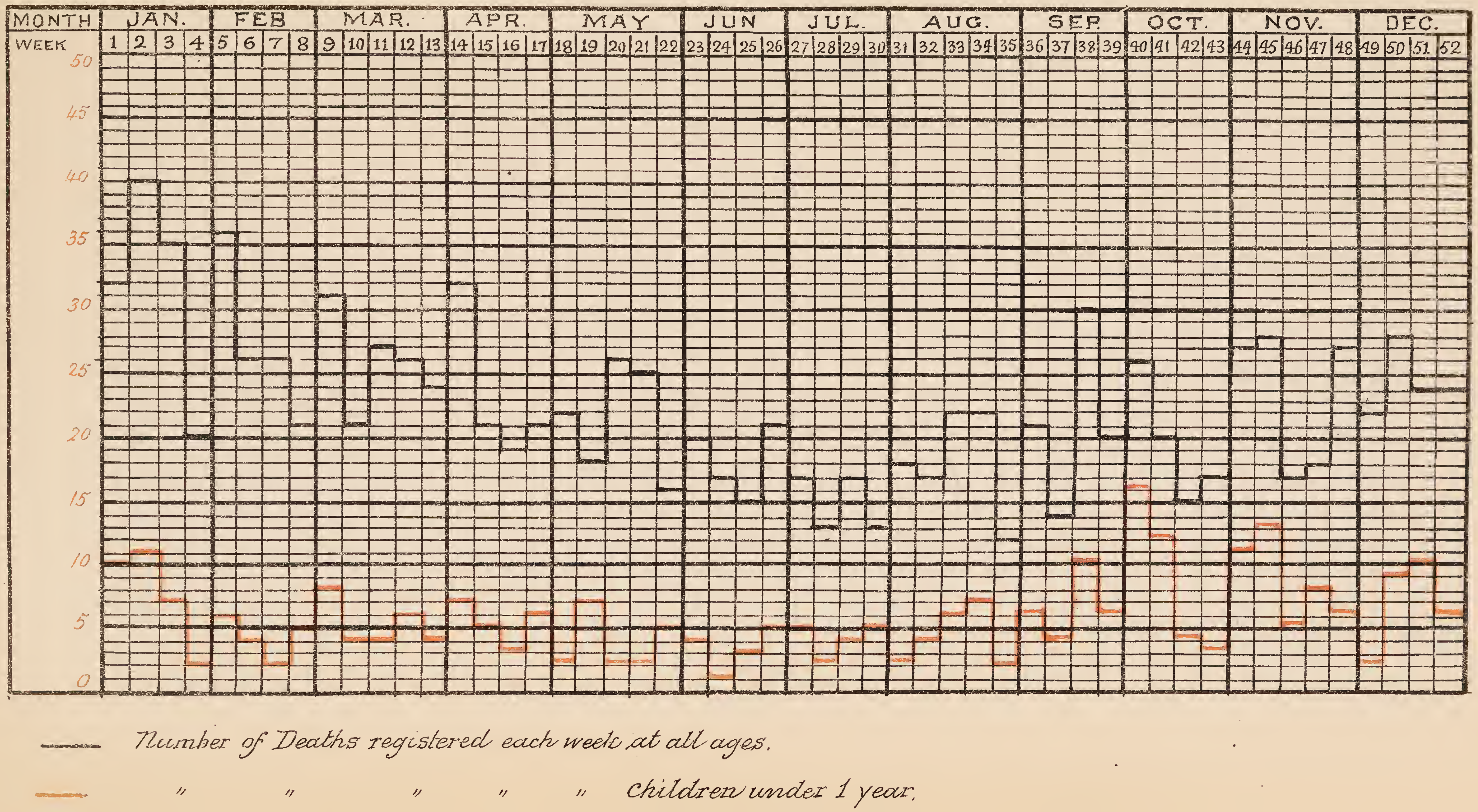
Information of these has been forwarded to the Medical Officers of Health of their respective localities.

Nineteen deaths occurring in the Workhouse and Infirmary were those of vagrants belonging, so far as is known, to no particular locality.

Eleven deaths have been reported to us as having occurred in public institutions outside the district but as belonging to Warrington. These particular deaths were as follows:—

Winwick Asylum	5
Lancaster County Asylum	1
Rainhill Asylum	1
Whiston Union Workhouse	1
Northern Hospital, Liverpool	1
Royal Southern Hospital, Liverpool	2
Total ...	11

The crude death-rate for 1907 was therefore 16·2, but deducting 48 non-residents from, and adding 11 residents dying outside to, the registered number, viz., 1167, we get 1130 the actual number to be credited to Warrington. The net death-rate on this calculation is 15·7. The death-rate for England and Wales as given by the Registrar–General is 15·0.


MONTH
WEEK
JAN. FEB MAR. APR. MAY JUN JUL. AUG. SEP. OCT. NOV. DEC.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
50
45
40
35
30
25
20
15
10
5
0
Number of Deaths registered each week at all ages.
" " " " " children under 1 year.

AGES OF MORTALITY.

	Males.	Females.	Total.
Under 1 year—			
0—3 months	66	68	134
3–6 ,, ...	28	20	48
6—12 ,, ...	53	53	106
Totals under 1	147	141	288
Over 1 and under 2	43	49	92
,, 2 ,, 3	19	24	43
,, 3 ,, 4	12	12	24
,, 4 ,, 5	8	9	17
Totals 1—5	82	94	176
Over 5 and under 10... ...	13	23	36
,, 10 ,, 15... ...	8	10	18
,, 15 ,, 25... ...	19	29	48
,, 25 ,, 35... ...	37	38	75
,, 35 ,, 45... ...	51	39	90
,, 45 ,, 55... ...	54	36	90
,, 55 ,, 65... ...	79	49	128
,, 65 ,, 75... ...	61	61	122
,, 75 ,, 85... ...	23	29	52
Over 85	2	5	7
Totals at ages over 5 ...	347	319	666

(1) THE ZYMOTIC DEATH-RATE, or death-rate from seven chief epidemic diseases, that is to say, Smallpox, Measles, Scarlet Fever, Whooping Cough, Diphtheria, and Membranous Croup, Enteric Fever, and Diarrhœa has long been regarded as a test of the state of the public health. The above list includes most, though by no means all the common diseases which are spread by infection from person to person, and which should be to a large extent preventable. The death-rate from these

diseases in 1907 was, except for the year 1902, the lowest on record since 1896.

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
3·0	2·8	3·2	5·01	2·5	3·8	1·53	3·5	4·6	2·7	3·1	2·1

YEAR 1907.

UNCERTIFIED DEATHS WITH REGARD TO WHICH NO INQUEST WAS HELD.

CAUSE OF DEATH AS GIVEN BY THE REGISTRAR.	All ages.	Under 1 year	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards
Premature Birth	6	6	...	...	...	...	...
Convulsions	10	9	1	...	...	...	...
Syncope	12	...	...	...	...	9	3
Heart Disease	3	...	...	...	...	3	...
Heart Failure	4	...	...	...	...	3	1
Mitral Regurgitation ...	1	...	...	...	1	...	...
Hysteria	1	...	...	1	...	...	...
Bronchitis	1	..	...	...	...	1	...
Acute Laryngitis ...	1	...	1	...	...	...	...
Cerebral Hæmorrhage ...	1	...	...	...	...	1	...
Convulsion Fit	2	2	...	...	...	...	...
Pneumonia	1	...	1	...	...	...	...
Measles	1	1	...	...	...	...	...
Atelectasis	1	1	...	...	...	...	...
Natural Causes	6	1	1	1	...	3	...
Totals	51	20	4	2	1	20	4

LIST OF CASES IN WHICH AN INQUEST WAS HELD.

ACCIDENTS by falls	9
drowning	5
being run over by train	1
being crushed between wagons	1
strand machine at works	2
being run over by horse and trap ...	1
being caught by revolving shaft ...	1
burns	3
plank falling upon him	1
billposting hoarding falling upon him ...	1
scalds	1
Total	26

Deaths from excessive drinking	1
,, "Natural Causes"	5
,, tubercular disease of intestine, accelerated by neglect of mother	1
,, suffocation	3
,, tubercular disease of mesenteric glands	1
Total	11
SUICIDES by hanging	4
strangling	1
Total	5
Total	42

TABLE TO SHOW THE VITAL RATES FOR THE DIFFERENT WARDS OF THE TOWN.

WARD.	Estimat'd Population Middle of 1907.	Persons per house at Census 1901.	Birth Rate per 1,000 living.	Death Rate per 1,000 living.	Infantile Death Rate per 1,000 births.	Death Rate from the Seven Chief Epide'ic Diseases	Phthisis Death Rate per 1,000 living.
TOWN HALL	4,925	5·0	24·3	19·6	116	2·0	1·4
WHITECROSS	9,526	5·5	37·8	12·0	66	2·3	1·2
BEWSEY	5,421	5·4	34·1	15·6	118	2·0	1·8
ORFORD	9,717	5·9	40·4	15·2	129	2·3	·8
ST. JOHN'S	10,914	5·2	32·5	19·3	165	2·7	1·2
FAIRFIELD	8,266	4·9	32·6	16·8	140	2·1	1·3
HOWLEY	6,708	5·2	36·8	16·3	129	1·6	1·9
ST. AUSTIN'S	6,052	5·2	23·1	15·8	135	2·6	1·4
LATCHFORD	10,320	5·0	27·5	10·8	84	1·1	·7
WHOLE BOROUGH	71,849	5·2	32·7	15·7	122	2·1	1·29

The DEATH-RATE from the DISEASES OF THE RESPIRATORY ORGANS other than those of tuberculous origin was 2·9 per 1,000 population. The figures for preceding years are given below:—

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
3·6	4·0	3·6	3·2	2·6	3·0	3·2	2·4	3·0	2·3	3·1

DEATHS FROM TUBERCULOSIS.—(1) There were 93 deaths from Tuberculosis of the Lungs, or Phthisis, giving a death-rate of 1·29.

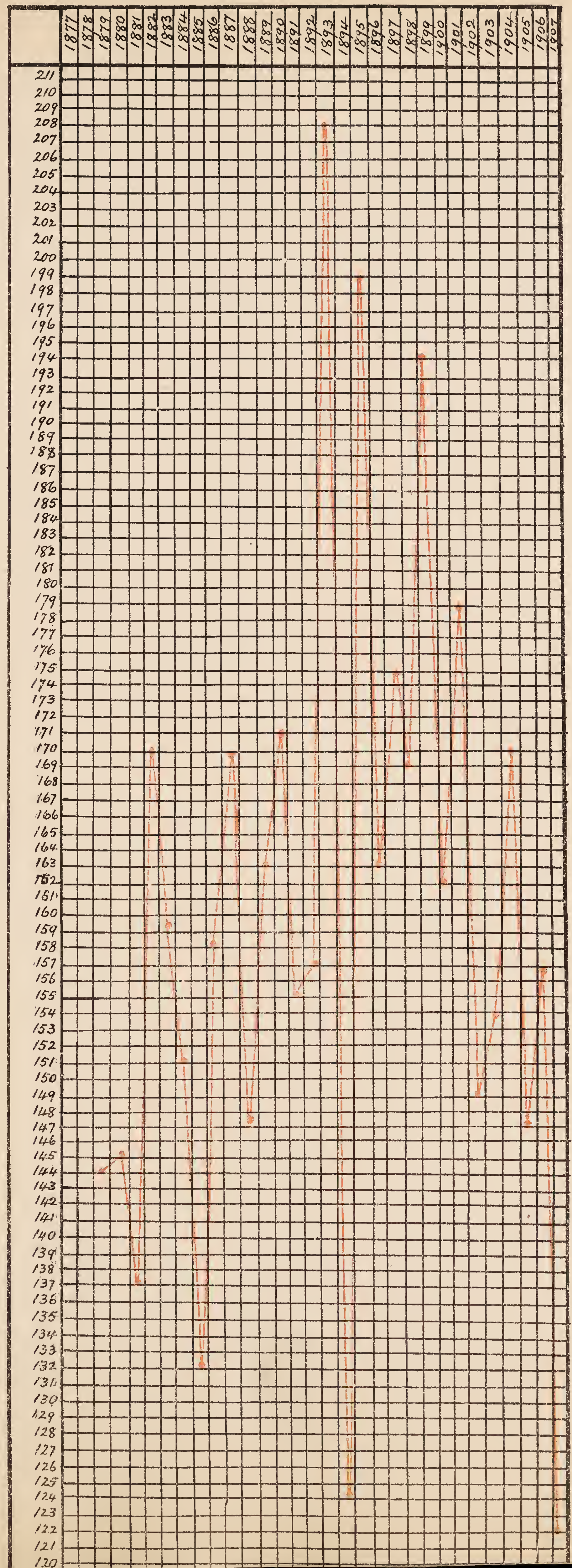
(2) The deaths from other forms of Tuberculosis numbered 46, giving a death-rate of ·564. These tubercular death-rates show a slight improvement on those of 1906.

The following table shows the number of cases notified and the deaths from Tubercular Phthisis since voluntary notification was first introduced into Warrington in 1901 :—

	Notifications.	Deaths.	Deaths per 1,000 of the Population.
1901	40 (Oct. to Dec.)	90	1·396
1902	73	79	1·199
1903	52	84	1·250
1904	75	80	1·168
1905	77	95	1·373
1906	80	111	1·577
1907	115	93	1·294

INFANTILE MORTALITY.— The death-rate of infants under one year of age per 1,000 births has fallen from 157 in 1906 to 122 in 1907. In another part of this report I have shown that this fall is chiefly, if not entirely, due to the fewer deaths from diarrhœa, which in turn may be ascribed to the meteorological conditions during the summer months of the year. The Medical Officer of Health of Bristol has recently called attention to a similar but a still more marked fall in the Infant Mortality Rate for that city during the year without there having been made by the Health Department any special efforts to lower the rate—such as obtaining an early notification of births and instituting a systematic visiting of all new-born babies.

Infantile Mortality in Warrington since 1879.



Without wishing in any way to disparage such efforts as these, I must point out that the figures for the two years show that there are causes at work tending to the deaths of infants which are preventable by other means than the instruction of mothers as to how to feed their children. Such causes, I have stated, may be the fertile growth of diarrhœa germs on animal and vegetable refuse during the warm weather, and their transference to the artificially-fed infants food by dust and flies.

Nature's remedy during 1907 has been a cold summer, preventing the growth of these germs, and copious rain washing away the organic refuse.

Our remedy should be the thorough scavenging of organic refuse from the vicinity of dwellings, and the seeing that the infants have food which cannot be contaminated, *i.e.*, the mother's breast-milk.

DEATHS FROM CANCER.

Males.		Females.	
Cancer—Stomach	6	Cancer—Stomach	5
Liver	3	Liver	3
Rectum	4	Uterus	4
Kidney	2	Breast	4
Mouth	2	Mouth	1
Larynx	1	Brain	1
Sarcoma—Glands of Neck	1	Pharynx	1
		Groin	1
		Sarcoma—Liver	1
		Sigmoid Flexure	1
	19		22

Total 41.

STATISTICAL TABLES
OF
BIRTHS, DEATHS, AND DISEASES,
FOR THE
COUNTY BOROUGH OF WARRINGTON
(AS SUPPLIED TO THE LOCAL GOVERNMENT BOARD).

TABLE I.

FOR WHOLE DISTRICT.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all Ages belonging to the District.	
				Under One Year of age.		At all Ages.						
		No.	Rate.*	No.	Rate per 1000 Births regst.	No.	Rate.*				No.	Rate*
1	2	3	4	5	6	7	8	9	10	11	12	13
†1897	60,877	2,269	37·2	398	175	1,244	20·4	145	37	2	1.209	19·1
1898	61,465	2.358	38·3	399	169	1,156	18·8	137	35	1	1,122	18·2
1899	62.761	2,309	36·7	449	194	1,313	21·1	145	30	3	1,286	20·4
1900	63,560	2,388	37·5	389	162	1,289	20·3	178	42	15	1,265	19·8
1901	64,465	2,276	35·2	404	177	1,273	19·7	147	36	6	1.243	19·2
1902	65,842	2,376	36·1	350	149	1.108	16·8	154	21	8	1,095	16·6
1903	67,153	2 395	35·6	369	154	1.261	18·7	168	33	10	1,238	18·4
1904	68,490	2,246	32·7	384	171	1 361	19·8	174	39	12	1,335	19·4
1905	69,153	2,281	32·9	336	147	1,192	17·3	167	36	13	1,169	16·9
1906	70,364	2,248	31·9	353	157	1,303	18·5	202	40	10	1,273	18·0
Averages for years 1897-06.	65,413	2,314	35·4	384	165	1,250	19·1	161	34	8	1,223	18·6
1907	**71,849**	**2,356**	**32·7**	**288**	**122**	**1,167**	**16·2**	**224**	**48**	**11**	**1,130**	**15·7**

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public Institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made is given on p. 20.

Area of District in acres (exclusive of area covered by water), 3,115.

Total population at all ages	64,242	At Census of 1901.
Number of inhabited houses	12,272	
Average number of persons per house	5·2	

† By the Warrington Corporation Act, which came into force in November, 1896, an addition of over two thousand was made to the population of the Borough.

TABLE II.

Vital Statistics of separate Localities in 1907 and previous years.

Name of District—COUNTY BOROUGH OF WARRINGTON.

Names of Localities.	1.—WHOLE BOROUGH.				2.—TOWN HALL WARD.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
*1897 ...	60877	2269	1209	398	5676		95	
1898 ...	61465	2358	1122	399	5606		90	
1899 ...	62761	2309	1286	449	5524		103	
1900 ...	63560	2388	1265	389	5448		100	
1901 ...	64465	2276	1243	404	5368		107	25
1902 ...	65842	2376	1095	350	5360	128	83	22
1903 ...	67153	2395	1238	369	5155	139	112	18
1904 ...	68490	2246	1335	384	5075	138	93	15
1905 ...	69153	2281	1169	336	5010	142	84	19
1906 ...	70364	2248	1273	353	4995	126	87	17
Averages of Years 1897 to 1906.	65413	2314	1223	334	5321		95	
1907 ...	71849	2356	1130†	288	4925	120	97	14

Names of Localities.	3.—WHITECROSS WARD.				4.—BEWSEY WARD.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
*1897 ...	6928		122		5205		119	
1898 ...	7074		98		5153		90	
1899 ...	7220		126		5101		118	
1900 ...	7336		142		5049		113	
1901 ...	7516		101	27	4995		94	29
1902 ...	7700	328	118	29	4010	170	89	29
1903 ...	8503	342	122	43	5011	187	110	36
1904 ...	8827	341	147	43	5157	164	107	37
1905 ...	9097	386	114	47	5254	139	113	30
1906 ...	9176	345	118	38	5275	165	124	28
Averages of Years 1897 to 1906.	7637		120		5021		107	
1907 ...	9526	361	116	24	5421	185	85	22

Names of Localities.	5.—ORFORD WARD.				6.—ST. JOHN'S WARD.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a*	*b.*	*c.*	*d.*
*1897 ...	6840		171		9721		232	
1898 ...	7092		143		9874		217	
1899 ...	7344		165		10027		267	
1900 ...	7596		116		10180		221	
1901 ...	7849		152	45	10366		301	121
1902 ...	7915	290	131	48	10633	474	215	86
1903 ...	8030	251	138	42	10910	527	259	88
1904 ...	8777	292	153	48	10857	425	252	102
1905 ...	9150	287	125	38	10826	428	272	91
1906 ...	9209	323	170	52	10920	378	229	81
Averages of Years 1897 to 1906.	7980		146		10431		246	
1907 ...	9717	393	148	51	10914	356	211	59

Names of Localities.	7.—FAIRFIELD WARD.				8.—HOWLEY WARD.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
*1897 ...	6469		101		6570		172	
1898 ...	6713		102		6591		171	
1899 ...	6959		115		6612		144	
1900 ...	7201		110		6633		172	
1901 ...	7447		120	50	6652		149	44
1902 ...	7708	272	118	42	6729	254	145	44
1903 ...	7864	275	137	44	6838	254	119	45
1904 ...	7844	228	128	34	6749	227	183	49
1905 ...	8001	243	117	39	6666	221	120	30
1906 ...	8154	270	121	34	6702	217	139	41
Averages of Years 1897 to 1906.	7436		116		6674		151	
1907 ...	8266	270	136	39	6708	247	110	32

Names of Localities.	9.—ST. AUSTIN'S WARD.				10.—LATCHFORD WARD.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
*1897 ...	6032		91		7411		106	
1898 ...	6106		85		7569		126	
1899 ...	6180		115		7727		133	
1900 ...	6254		93		7885		145	
1901 ...	6324		85	24	8040		126	46
1902 ...	6372	150	78	24	8310	280	92	20
1903 ...	6427	143	96	20	8753	277	123	33
1904 ...	6390	148	84	18	9065	283	164	38
1905 ...	6208	146	86	13	9375	289	117	29
1906 ...	6156	123	102	14	9777	301	157	48
Averages of Years 1897 to 1906.	6244		91		8391		128	
1907 ...	6052	140	96	19	10320	284	112	24

NOTES.—(*a*) The separate localities adopted for this table should be areas of which the populations are obtainable from the census returns, such as wards, parishes or groups of parishes, or registration sub-districts. Block 1 may, if desired, be used for the whole district; and blocks 2, 3, &c., for the several localities. In small districts without recognised divisions of known population this Table need not be filled up.

(*b*) Deaths of residents occurring in public institutions beyond the district are to be included in sub-columns *c* of this table, and those of non-residents registered in public institutions in the district excluded. (See note on Table 1. as to meaning of terms "resident" and "non-resident.")

(*c*) Deaths of residents occurring in public institutions, whether within or without the district, are to be allotted to the respective localities according to the addresses of the deceased.

(*d*) Care should be taken that the gross totals of the several columns in this Table respectively equal the corresponding totals for the whole districts in Tables 1. and IV.; thus, the totals of sub-columns *a*, *b*, and *c* should agree with the figures for the year in the columns 2, 3, and 12, respectively, of Table I.: the gross total of the sub-columns *c* should agree with the total of column 2 in Table IV., and the gross total of sub-columns *d* with the total of column 3 in Table IV.

* In 1897 the Borough was extended. † Of these 19 could not be distributed.

COUNTY BOROUGH OF WARRINGTON.

TABLE III.—Cases of Infectious Disease notified during the Year 1907.

NOTIFIABLE DISEASE.	Cases notified in Whole District.							Total Cases notified in each Locality.									**No. of Cases removed to Hospital from each Locality.									
	At all Ages	At Ages †—Years.																								
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.	Town Hall Ward.	Whitecross Ward. (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Town Hall Ward.	Whitecross Ward. (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Totalcasesremoved to Hospital.
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria (including Membranous Croup)	78	4	33	34	3	4	..	7	6	4	19	7	9	7	8	11	5	4	1	13	6	4	2	4	4	43
Erysipelas	21	1	..	4	2	11	3	4	4	2	2	2	2	..	4	1	..	..	..	..	..	..	..	..	..	..
Scarlet Fever	311	15	113	155	17	11	..	53	108	28	21	34	13	6	25	23	40	67	28	20	32	10	5	23	16	241
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	21	..	..	10	3	8	..	2	3	..	3	6	..	1	..	6	..	3	..	2	3	..	1	..	5	14
Relapsing Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Continued Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Puerperal Fever	9	..	..	..	2	7	..	..	3	..	1	1	..	3	1	..	..	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phthisis	115	..	3	9	15	85	3	2	54	4	7	17	7	12	4	8	..	3	..	..	3	1	2	..	1	10
Cerebo Spinal Meningitis	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Totals	556	20	150	212	42	126	6	68	179	38	53	67	31	29	42	49	45	78	29	35	44	15	10	27	26	309

NOTES.—The localities adopted for this Table should be the same as those in Tables II. and IV.

State in space below the name of the Isolation Hospital, if any, to which residents in the district, suffering from infectious disease, are usually sent. Mark (H) the locality in which it is situated, or if not within the district, state where it is situated, and in what district. The name of the authority by whom the hospital is provided should also be given. Mark (W) the locality in which a workhouse is situated.

† These age columns for notifications should be filled up in all cases where the Medical Officer of Health, by inquiry or otherwise, has obtained the necessary information.

** Column 8 should be filled up with the Totals of cases removed to Hospital, whether the District is divided into separate localities or consists of only one undivided area.

Isolation Hospital, Warrington Borough Hospital, Aikin Street (Whitecross Ward).

Small-pox Hospital at Sankey (outside the Borough).

TABLE IV.—COUNTY BOROUGH OF WARRINGTON.

CAUSES OF, AND AGES AT, DEATH DURING YEAR 1907.

Causes of Death.	Deaths in or belonging to whole District at Subjoined Ages.							Deaths in or belonging to Localities (at all Ages).										Total Deaths in Public Institutions
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Town Hall Ward.	Whitecross Ward.	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Undistribut'd Deaths.	
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	58	8	44	6	..	..	..	1	15	2	3	12	6	4	11	4	..	..
Scarlet Fever	12	2	7	3	..	..	..	1	3	1	2	..	..	2	2	1	..	11
Whooping Cough	11	9	1	1	..	..	..	1	1	..	2	3	3	..	..	1	..	..
Diphtheria & Membranous Croup	14	2	8	4	..	..	..	3	..	3	2	..	..	2	..	4	..	10
Croup	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fever—																		
Typhus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric	6	..	..	3	..	3	..	2	1	..	1	1	..	..	..	1	..	[illegible]
Other continued	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza	17	1	1	1	1	7	6	1	..	4	2	4	..	2	..	4	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhœa	52	40	11	..	..	..	1	2	2	5	13	14	9	3	3	1	..	..
Enteritis	8	..	4	1	..	..	3	..	2	..	..	2	..	1	1	2	..	..
Puerperal Fever	2	..	..	..	..	2	..	..	..	..	..	..	..	2	..	..	..	1
Erysipelas	2	1	..	..	..	1	..	..	1	..	..	..	..	..	..	1	..	..
Other Septic Diseases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phthisis (Pulmonary Tuberculosis)	93	3	..	5	14	70	1	7	12	10	8	14	11	13	9	8	1	21
Other Tubercular Diseases	46	17	16	8	..	4	1	4	6	2	1	13	9	3	3	4	1	12
Cancer, Malignant Disease	44	..	1	..	..	33	10	9	4	3	5	4	9	2	2	5	1	14
Bronchitis	111	31	11	1	2	34	32	9	13	5	17	25	11	14	7	9	1	[illegible]
Pneumonia	93	18	30	2	4	30	9	5	10	6	20	18	12	5	8	7	2	12
Pleurisy	4	..	1	..	1	1	1	1	2	1	..	..	..	..	..	..	..	..
Other Diseases of Respiratory Organs	3	..	..	..	1	2	..	..	1	1	..	..	..	..	1	..	..	..
Alcoholism Cirrhosis of Liver	15	..	..	..	..	14	1	..	3	..	2	4	2	..	3	1	..	[illegible]
Venereal Diseases	3	3	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	1
Premature Birth	36	36	..	..	..	..	..	..	2	1	10	6	3	5	1	7	1	1
Diseases and Accidents of Parturition	4	..	..	..	2	2	..	..	1	1	..	1	1	..	..	..	..	..
Heart Diseases	103	..	..	1	5	61	36	13	9	10	12	18	9	13	7	10	2	26
Accidents	28	1	6	4	6	9	2	1	1	2	..	7	2	3	7	4	1	13
Suicides	5	..	..	..	..	4	1	..	..	..	..	3	..	1	..	1	..	..
All other causes	360	116	35	14	12	106	77	37	27	28	48	61	49	35	31	36	8	93
All causes	1130	288	176	54	48	383	181	97	116	85	148	211	136	110	96	112	19	224

TABLE V.—COUNTY BOROUGH OF WARRINGTON.

INFANTILE MORTALITY DURING THE YEAR 1907.

Deaths from stated Causes in Weeks and Months under One Year of Age.

AUSE OF DEATH.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-2 Months.	2-3 Months.	3-4 Months.	4-5 Months.	5-6 Months.	6-7 Months.	7-8 Months.	8-9 Months.	9-10 Months.	10-11 Months.	11-12 Months.	Total Deaths under 1 Year.
Causes:																	
ertified	46	13	9	11	79	23	21	23	12	10	16	23	16	16	17	17	273
ncertified	10	..	..	1	11	..	..	1	1	1	1	..	..	..	..	..	15
mmon Infectious Diseases:																	
mallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
hickenpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
easles	..	..	..	..	..	..	..	..	1	..	..	1	2	2	..	2	8
carlet Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2
iphtheria	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2
hooping Cough	..	..	.	..	..	1	2	..	..	..	1	3	..	..	2	..	9
rrhœal Diseases:																	
iarrhœa (all forms)	..	..	..	..	..	2	4	10	2	2	2	3	3	..	1	3	32
nteritis, Muco-enteritis. Gastro-enteritis	1	1	..	..	2	2	..	1	..	..	..	..	..	..	..	..	5
astritis, Gastro-intestinal Catarrh	..	..	..	..	..	..	1	1	..	1	..	..	..	..	..	..	3
sting Diseases:																	
remature Birth	29	4	3	..	36	..	..	..	..	..	..	..	..	..	..	..	36
ongenital Defects	4	..	1	..	5	1	..	..	..	..	..	..	..	1	..	..	7
njury at Birth	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
ant of Breast Milk	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
trophy, Debility, Marasmus	7	2	2	6	17	5	2	1	1	2	1	3	1	..	2	..	35
berculous Diseases:																	
uberculous Meningitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
uberculous Peritonitis: Tabes Mesenterica	..	..	..	..	..	2	1	1	1	1	1	2	..	2	..	1	12
ther Tuberculous Diseases	..	..	..	..	..	..	1	..	..	1	1	1	1	..	..	1	6
ysipelas	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
hilis	1	1	..	..	2	..	1	..	..	..	..	..	..	..	..	..	3
kets	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
ningitis (not Tubercu-ous)	..	..	..	..	..	2	..	3	..	..	1	2	..	2	..	3	13
nvulsions	1	2	2	..	5	2	1	..	..	1	..	..	1	..	..	..	10
nchitis	..	..	..	3	3	2	5	1	2	1	5	6	..	..	4	2	31
ryngitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
umonia	..	..	..	..	..	1	..	2	..	1	4	1	2	5	2	..	18
focation, overlying	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	3
er Causes	13	2	1	3	19	2	2	2	5	1	1	1	6	2	2	2	45
	56	13	9	12	90	23	21	24	13	11	17	23	16	16	17	17	288

TRICT OF WARRINGTON.

Population, estimated to middle of 1907, 71,849.

Births in the year { Legitimate 2,293
Illegitimate 63

Deaths from all Causes at all ages .. 1,130

Deaths in the year { Legitimate 276
Illegitimate 12

MEMORANDA AS TO CIRCUMSTANCES LIKELY TO INFLUENCE THE PUBLIC HEALTH OF WARRINGTON.

Situation.—On the northern and southern banks of River Mersey, about midway between Manchester and Liverpool: the southern municipal boundary, the Ship Canal, also constitutes the dividing line between Lancashire and Cheshire at this point. Also on the main road between the Midlands and parts of Lancashire (including coal and iron districts). It is consequently continually passed through by tramps and persons in search of employment. It is generally low lying and in a depression formed by valley of Mersey, most of town being to the north of that river. The parts of it nearest to the river, and almost the whole of the Latchford Ward on the south are on alluvial land (part of the old river bed). The site of the rest of the town, which rises towards the centre, is on a formation of the upper levels of the New Red Sandstone, covered to varying depths with a glacial deposit of boulder clay, and in two spots, one in Sankey Street and the other in Bewsey Street, there also exist gravel beds.

Streets and Buildings.—In the older and central portion, comprising chiefly Town Hall, Howley, and St. John's Wards (*vide* Ward Rates), are narrow streets and back courts and alleys containing insanitary dwellings, now gradually disappearing partly through street widening, partly through the work of the Health Committee. Shops and offices are largely supplanting residences in the middle of the town. Around this is an area of streets of small houses called into existence by the industrial development of last 50 years : 40 per cent. of the houses in the borough contain four rooms or less. Much of the property of twenty years ago or more has passed into a very bad state through the absence of damp-course, &c.

The paving of new streets is often delayed for a long time, while in back passages in this respect, the condition of things is even worse, but it is now to be hoped that a decisive improvement will be made. The matter is of great importance for the future healthfulness of the borough, as unpaved streets form excellent breeding ground for germs of every description.

Suburbs can hardly be said to exist within the confines of the Borough, though in two directions, at any rate, east and south of the centre, the town acquires a more suburban character. Contiguous to these parts, but outside the borough, are two populous and growing districts, Stockton Heath and Padgate, the one in the Runcorn Rural District, the other in the Warrington Rural District. Under the latter Sanitary Authority is also an increasing population just outside the western boundary at Sankey Bridges. As none of these places have in sanitary administration been brought up to the level of the Borough, especially as regards the isolation of infectious diseases, and a great number of the inhabitants have their employment, and many of the children come to school inside the town, there is no doubt that they are a danger to Warrington, and increase the cost of carrying on the work of the Health Department.

Communication by railway is particularly good, rendering easy access to neighbouring towns, and, indeed, to all parts of the country. Electric tramways have now been running six years, and there are already signs that they will lead to new suburban districts, though it remains to be seen how they will help us in the housing difficulty by reducing the overcrowding in the worst parts of the town.

Age and Sex Distribution of Population.—At the census there were shewn to be 32,323 males, and 31,919 females, the excess of males being mainly owing to industrial conditions. 16,889 persons were under ten years of age (viz., 8,458 males and 8,431 females), *i.e.* 26 per cent. of the population, a proportion that is not likely to go down if our high birth-rate continues.

Occupations.—An almost entirely industrial community: the staple trades being the manufacture of iron in many various branches, and tanning, but a remarkable number of other businesses exist, *e.g.*, soap-making, fustian-cutting, glass-making, and file-cutting; there is only one cotton mill. The result of this variety of trades is an almost continuous prosperity; places where there is only one main means of livelihood are much more liable to periods of distress.

Disposal of Refuse and Drainage.—According to the latest return there are now

(1) Water Closets, 694, approximately.
(2) Pails Closets, 14,221.
(3) Privy Closets, 6 (4 only cleansed by Corporation).

I am indebted to the courtesy of Mr. T. Longdin, the Borough Surveyor, for the following account of the drainage of Warrington:

"In the year 1849 the then Robert Rawlinson (who afterwards received the title of Sir R. Rawlinson, C.B., and became Chief Engineering Inspector of the Local Government Board) was engaged by the Corporation of Warrington to report upon a scheme of drainage for the town.

"This report was adopted, and with certain modifications was carried out. It dealt with a town area of 1,744 acres and a then suburban area of 171 acres; the present acreage of Warrington is 3,115. The major portion is built upon, and has, according to the last census, a population of 64,242, and the whole of the population is provided with sewerage arrangements. There are very few water closets in the town, the excreta being dealt with on a dry conservancy system known as the pail system, but the sewers receive a large volume of water from the large manufacturing industries of the town. The main outfall sewers are of egg-shaped brick sewers varying from 4ft. by 3ft. and 3ft. 6in. by 2ft. 6in. to 3ft. by 2ft ; the secondary sewers are of circular stoneware pipes varying in size from 30in. to 9in. The whole is on the gravitating system excepting the Latchford portion and Padgate section of the town, from which the sewage gravitates to Shone's Pneumatic Ejectors, and is lifted by them to the main outfall sewers. This has enabled the sewers in the two districts to be laid with gradients ensuring good velocities in the flow of the sewage. All the sewers gravitate to and empty into the tidal portion of the River Mersey and into Sankey Brook, its tributary. [The latter is already highly polluted with organic and chemical matter when it reaches the Borough Boundary, and it cannot be said that the contribution of Warrington to the contamination of this stream is other than trifling, compared with the vast volume of sewage poured into it before it gets to the town.—Note by Medical Officer.] There are six outlets into the River discharging in various parts of the town. The sewers are provided with storm overflows discharging also into the tidal portion of the River. Particular attention is paid to the flushing of the sewers to prevent any deposit that might occur in certain low-lying districts of the town."

Household Refuse is collected weekly from the bins with which each house is provided, and is for the most part destroyed by burning, a great deal more being dealt with in this way since the new Electric Works were started. Street refuse not suitable for fuel is tipped on waste ground. There is however a great deal more tipping of noxious material going on than ought to be allowed.

The Scavenging of the Streets and Passages is greatly hindered by want of proper paving; there is, however, fair improvement to be recorded.

The Public Institutions for the reception of cases of illness are three in number.

(1) The Warrington Infirmary, containing since the recent extension accommodation for about 100 patients, is in the main a surgical hospital, especially for accidents. It has a large out-patient department, and besides, its medical officers attend at their homes the great majority of the sick persons in the town who are not able to afford to pay a private attendant, and are not in clubs.

(2) The Workhouse Hospital, containing 194 beds, is of recent construction, and designed on modern lines.

(3) The Borough Isolation Hospital, in Aikin Street, provides the requisite accommodation for 88 patients. The staff at present consists of a matron, sister, 13 nurses, 14 maid-servants, an engineer, porter, and two gardeners. Medical practitioners are allowed to attend their own patients. No charge has been made to patients for many years. The diseases which are treated here are Scarlet Fever, Enteric Fever, and Diphtheria. Additional provision for cases of Smallpox has been provided by the construction of a Sanatorium of 24 beds at Sankey, three miles to the west of Warrington. The Aikin Street Hospital is, according to certain contracts, available for the reception of patients from the Newton Urban District and the Warrington Rural District, when the circumstances of the town permit; it is also a Hospital for the Port Sanitary Authority of Manchester, on which Warrington is represented, and in such capacity takes in patients landed from the Ship Canal within the limits of the Borough.

As auxiliary to the above ought to be mentioned the Warrington District Nursing Association, which has six nurses who carry on an invaluable work among the sick poor.

Schools.—With regard to the Public Elementary Schools, excepting in a few of more modern construction, it cannot be held that the sanitary conditions are good. Bad-lighted and ill-ventilated rooms are inimical to the health of children, but those evils are much accentuated by the great overcrowding.

One new Council School has been opened, and a second is in the process of construction. The Secondary School conducted in the buildings of the Technical Institute has been so successful that there is not sufficient room for the scholars.

The only provision for higher education is that afforded at the ancient Boteler Grammar School.

There are also a few private schools carried on in ordinary dwelling-houses.

SECTION II.

INFECTIOUS DISEASES.

The year 1907 was not marked by any great outbreak of infectious disease. Scarlet Fever was somewhat more prevalent than in the two preceding years, and the number of cases of Diphtheria which were notified was considerably higher than that recorded in any preceding year. Measles was also prevalent and accounted for more deaths than were attributed to all the other Zymotic diseases (excepting Diarrhœa).

The following are the numbers of cases notified and deaths from the various notifiable infectious diseases, including Phthisis, the reporting of which is voluntary.

Disease.	Cases notified in 1907.	Deaths registered in 1907.
Smallpox	—	—
Scarlet Fever	311	12
Diphtheria	66	13
Membranous Croup	12	1
Enteric or Typhoid Fever	21	6
Continued Fever	—	—
Relapsing Fever	—	—
Typhus Fever	—	—
Puerperal Fever	9	2
Cholera	—	—
Erysipelas	21	2
Plague	—	—
Phthisis	115	92
Cerebro Spinal Meningitis	1	1

Measures of disinfection have been carried out not only in all cases of notifiable diseases, but also in several instances of Measles. Also after deaths from Phthisis and Puerperal Fever the usual spraying and stoving have been performed.

VACCINATION RETURNS FOR THE COUNTY BOROUGH OF WARRINGTON.

	1900	1901	1902	1903	1904	1905	1906	Half-year ending June 30, 1907.
Births	2413	2283	2329	2395	2268	2280	2260	1247
Successfully vaccinated ..	1977	1946	2016	2092	2007	2040	2003	1135
Insusceptible of vaccination ..	10	9	19	26	10	15	13	1
Died unvaccinated	390	288	262	241	221	212	214	84
Exemptions	15	15	8	8	11	3	13	19 (whole year.)
Removed: Address unknown	21	25	24	27	19	5	7	4
Had Small-pox	—	—	—	1	—	—	—	—
Removed to Districts of which the Vaccination Officer has been duly apprised	—	—	—	—	—	—	—	
Children born in other districts but vaccinated here ..	—	6	62	66	47	41	4	—

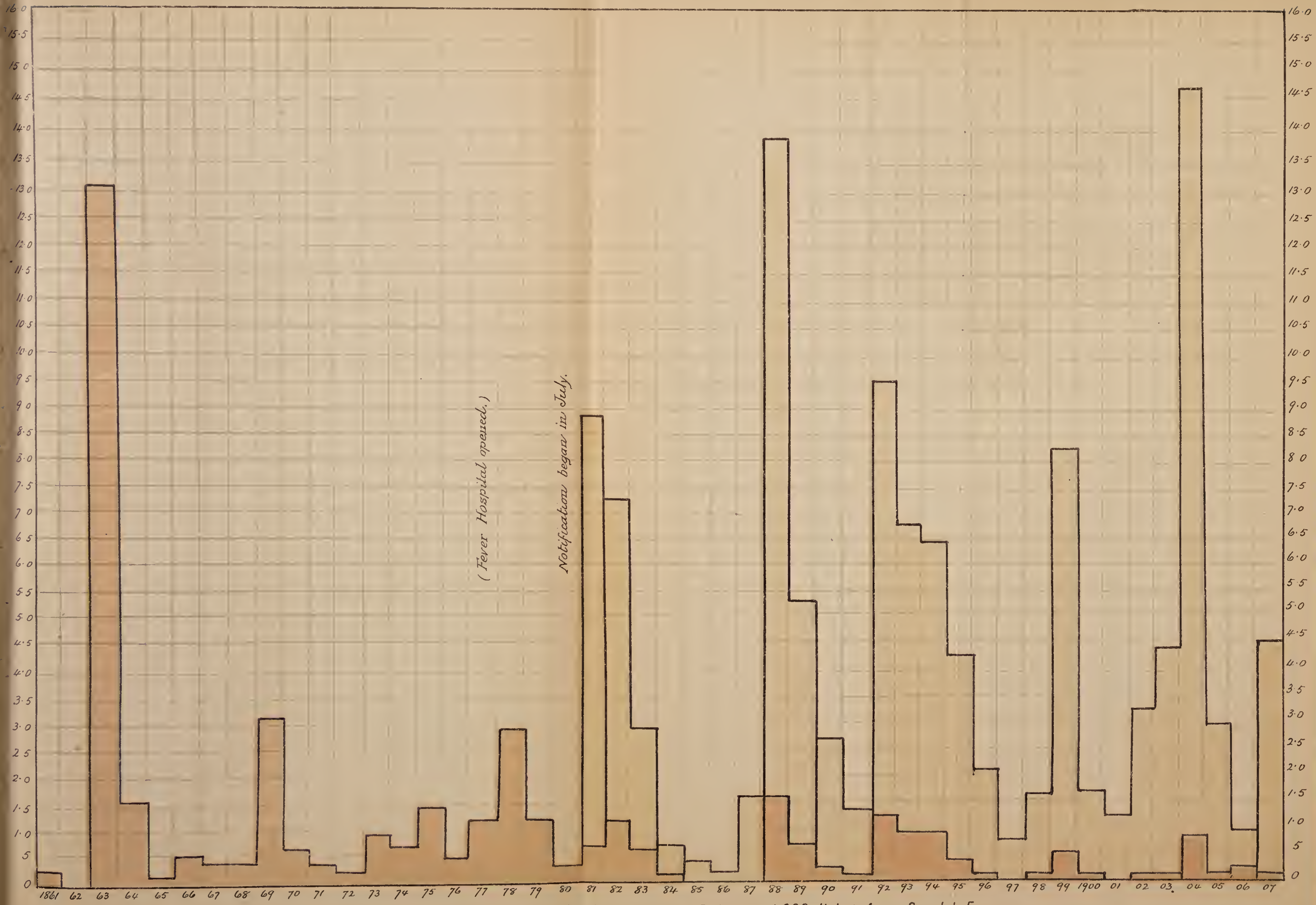
Number of Exemptions received this year (1908) up to end of March—42.

In the month of August an amendment of the Vaccination Act, 1898, was passed allowing a statutory declaration as to conscientious objection to be substituted for the certificate of justices. The immediate effect of this altered legislation has been the exemption from vaccination during the first three months of this year (1908) of 42 children as compared with 19 children exempted during the whole of 1907. The future and not far distant effect will doubtless be a severe epidemic of Smallpox, which will fall with all its pristine virulence on these unprotected children.

SCARLET FEVER.—311 cases of this disease were notified and 12 of these were fatal.

The following tables show the prevalence of and the mortality from this disease since the numbers have been recorded.

Chart Shewing the Death Rate from 1863 to 1907, and the Incidence of Scarlet Fever from 1881.



DARK RED Columns represent the Annual Death Rate per 1,000 living from Scarlet Fever.

LIGHT RED Columns represent the Annual Number of Cases per 1,000 living of Scarlet Fever.

SCARLET FEVER IN WARRINGTON DURING 47 YEARS.

Year.	Population.	Cases of Scarlet Fever.	Deaths from Scarlet Fever.	Case Mortality per cent.	Cases per 1000 living.	Deaths per 1000 living.	Percentage Isolated in Hospital.
1861	26,107	—	2	—	—	·1	—
1862	26,726	—	—	—	—	—	—
1863	27.345	—	383	—	—	13·1	—
1864	27,964	—	45	—	—	1·6	—
1865	28,583	—	3	—	—	·1	—
1866	29.202	–	15	—	—	·5	—
1867	29,821	—	11	—	—	·3	—
1868	30,440	—	12	—	—	·3	—
1869	31,059	—	109	—	—	3·1	—
1870	31,678	—	20	—	—	·6	—
1871	32,297	—	12	—	—	·3	—
1872	33,227	—	9	—	—	·2	—
1873	34,157	—	34	—	—	·9	—
1874	35,087	—	25	—	—	·7	—
1875	36.017	—	53	—	—	1·4	—
1876	36,947	—	16	—	—	·4	—
1877	37,877	—	45	—	—	1·1	—
1878	38,807	—	104	—	—	2·8	—
1879	39,737	—	40	—	—	1·1	—
1880	40,667	65	12	—	—	·3	—
1881	41,632	362	22	6·0	8·7	·6	88
1882	42,600	306	50	16·3	7·2	1·2	66
1883	43,814	127	27	20·8	2·9	·5	72
1884	44,482	27	4	14·8	·7	·1	77
1885	45,408	20	—	—	·4	—	50
1886	46,343	10	—	—	·2	—	80
1887	47,264	74	1	1·3	1·6	·02	79
1888	47,464	660	77	11·8	13·9	1·6	79
1889	49,000	256	32	12·5	5·2	·7	84
1890	51,000	131	16	12·2	2·6	·3	83
1891	52,986	70	9	12·8	1·3	·2	71
1892	53,809	510	66	12	9·5	1·2	76
1893	54,661	364	43	12	6·7	·8	79
1894	55,504	354	45	12·7	6·4	·8	82
1895	56,366	235	17	7·2	4·2	·3	85
1896	57,219	114	8	6·9	2·0	·1	92
1897	60,877	47	3	6·2	·8	·04	80
1898	61,465	107	9	8·4	1·7	·1	80
1899	62,761	513	29	5·7	8·2	·5	64
1900	63,560	115	8	6·9	1·8	·1	80
1901	64,465	80	1	1·3	1·2	·001	88
1902	65,842	211	9	4·3	3·2	·1	91
1903	67,153	289	8	1·4	4·3	·1	95
1904	68,490	1,042	52	5·0	15·5	·7	87
1905	69,153	201	9	4·0	2·9	·1	77
1906	70,364	64	2	3·1	0·9	·02	78
1907	71,849	311	12	3·7	4·3	·16	77

SCARLET FEVER.

AVERAGES FOR FIVE-YEAR PERIODS SINCE NOTIFICATION AND ISOLATION BEGAN (and for the Year 1906-7).

	1881-85.	1886-90.	1891-95.	1896-1900.	1901-5.	1906.	190
Cases	168	126	306	179	364	64	311
Deaths	20·6	25·2	36	11·4	15	2	12
Case Mortality % .. .	15·6	7·6	11·3	6·8	3·2	3·1	3·7
Cases per 1,000 living ..	4·0	4·7	5·6	2·9	5·4	·9	4·3
Deaths per 1,000 living ..	·5	·5	·6	·2	·2	·02	·16
Percentage Isolated	70	81	78	79	87	79	77

DIPHTHERIA.—There were 78 cases of this disease notified, 14 of which terminated fatally. The increasing prevalence of this disease has been commented upon elsewhere in this report.

The following table illustrates the prevalence of Diphtheria during the last fourteen years.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
No. of cases of Diphtheria notified	10	5	8	8	9	15	22	24	22	34	29	21	24	78
No of cases of Memb. Croup..	—	—	—	—	—	7	1	1	2	—	5	6	4	—
Death Rate for Diphtheria per 1,000	·08	·08	·03	·04	·15	·12	20	·12	·09	·01	·05	·12	·12	·19
No. of cases admitted to Hospital..	1	—	—	2	2	1	2	9	9	20	4	8	8	43

DEATHS FROM SCARLET FEVER, DIPHTHERIA, MEASLES, AND WHOOPING COUGH DURING PAST EIGHTEEN YEARS.

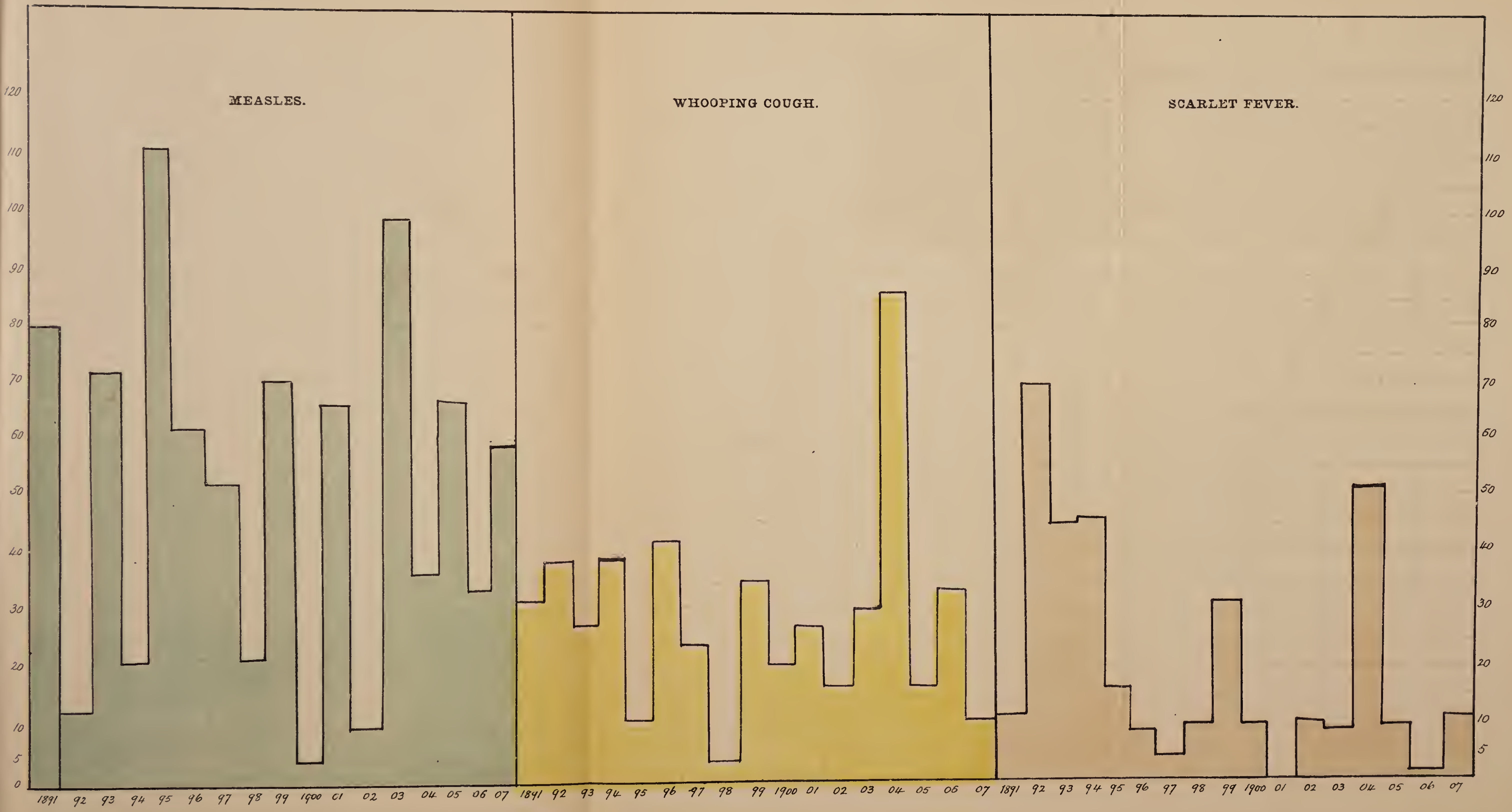
YEAR.	SCARLET FEVER.		DIPHTHERIA AND MEMBRANOUS CROUP.		MEASLES.		WHOOPING COUGH.	
	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.
1890	13	3	11	6	32	1	53	1
1891	5	4	10	1	72	8	18	1
1892	46	20	2	7	2	11	37	...
1893	34	9	10	3	71	1	23	1
1894	35	10	4	1	17	...	37	1
1895	13	4	5	...	107	4	9	1
1896	7	3	2	...	62	1	44	4
1897	2	1	1	2	52	...	28	...
1898	4	7	4	2	27	1	19	...
1899	21	8	6	2	68	1	33	1
1900	4	3	12	1	5	...	20	3
1901	1	...	8	...	62	3	46	3
1902	6	3	5	1	10	1	15	...
1903	3	5	10	1	94	3	30	...
1904	37	15	24	2	33	3	81	5
1905	3	6	3	4	64	2	5	11
1906	1	1	4	5	29	4	33	...
1907	9	3	10	4	52	6	10	1
Totals for 18 years...	244	105	131	42	859	50	541	33
Totals: all ages ...	349		173		909		574	

TABLE FOR COMPARISON OF THE PREVALENCE OF SICKNESS AND DEATHS FROM INFECTIOUS DISEASES

(RATES CALCULATED PER 1,000 POPULATION).

YEAR.	Smallpox.		Erysipelas.		Diphtheria & Membranous Croup.		Scarlet Fever.		Enteric and Continued Fever.		Puerperal Fever.		Measles.	
	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death
1891...	nil.	nil.	—	·094	21	·207	70	·162	41	·264	—	·037	—	1·70
1892...	489	1·015	—	—	14	·129	510	1·218	39	·203	—	—	—	·24
1893...	185	·234	3	·018	18	·234	364	·777	41	·307	—	nil.	—	1·31
1894...	3	—	24	·070	9	·088	354	·798	33	·141	3	·053	—	·30
1895...	—	—	44	·017	16	·086	235	·294	44	·208	5	·071	—	1·90
1896...	1	—	26	—	8	·034	114	·170	35	·085	5	·085	—	1·10
1897...	—	—	34	·033	8	·051	47	·051	41	·086	5	·051	—	·85
1898...	—	—	20	·016	9	·163	107	·147	41	·229	8	·049	—	·45
1899...	—	—	44	—	22	·128	513	·449	149	·385	2	·016	—	1·09
1900...	—	—	23	·015	23	·109	115	·109	62	·219	5	·031	—	·07
1901...	1	·017	44	·015	25	·124	80	·017	33	·062	4	·077	—	1 00
1902...	4	·015	40	·045	24	·091	211	·137	32	·091	10	·106	—	·16
1903...	86	·059	32	·014	34	·016	289	·119	22	·029	1	·014	—	1·51
1904...	47	·058	79	·131	34	·058	1066	·759	20	·043	6	·028	—	·53
1905...	1	—	61	·028	27	·124	201	·131	15	·058	15	·144	—	·96
1906...	1	—	68	·09	28	·12	64	·02	43	·056	8	·02	—	·4
1907...	—	—	21	·027	78	·19	311	·16	21	·083	9	·027	—	·80

Chart to Shew the Total Yearly Deaths from 1891 to 1907, from three important Epidemic Diseases.



BACTERIOLOGICAL EXAMINATIONS.—The time has now come when we are able to put more of our sanitary work on a scientific basis, and for this result we have to thank in great part the science of bacteriology which has made such progress during recent years.

By this means our notice has been more fully drawn to the dangers which lurk in milk and water; our knowledge of the nature of infection and of the measures necessary for dealing with it has been increased; and scientific methods of treating cases of infectious disease have been devised.

In this connection our attention is being now directed to the use of disinfectants. Up to the present we have used these substances in a rather haphazard way and have often wasted time and money in the employment of useless preparations. No substance should now be employed for disinfecting purposes unless it has been shown to be an efficient destroyer of infection by bacteriological experiment, the conditions under which the experiment is conducted being similar to those obtaining in the practical use of the disinfectant.

Towards the end of the year a small bacteriological laboratory was fitted up at Aikin Street Hospital, and much work should be done there in helping to diagnose cases of diphtheria, typhoid fever and tuberculosis, &c. More elaborate investigations, such as the examination of samples of milk and of water, cannot be undertaken there at present, and these will be referred to the laboratory in connection with the University College of Liverpool; but it is to be hoped that the time will soon come when Warrington will have a fully equipped laboratory of its own.

It has also been decided to increase the number of samples of water and of milk which are to be submitted for bacteriological examination, and instead of only 24 of these samples being investigated, a minimum of 75 will be examined yearly. This is an important step in helping to control both the water and the milk supply of the Borough; although, as has been explained previously, it forms only a partial safeguard against tuberculous milk.

SAMPLES OF WATER SUBMITTED TO BACTERIOLOGICAL EXAMINATION DURING THE YEAR 1907.

No. of Sample.	Date of taking Sample.	Where taken.	No. of Bacteria per cubic centimetre.	Nature of Bacteria.
1	April 27th	375, Winwick Road	Innumerable	These samples of water were not packed in ice, and were transmitted to the laboratory by post, thus often involving a delay of nearly 24 hours during which the bacteria present could multiply without the inhibiting influence of cold. This will in great part account for the large number of bacteria found to be present on examination. Investigations into the number of bacillus coli present in definite quantities of the water were not made in these instances.
2	,, 29th	Smith Street School	Innumerable	
3	July 11th	Health Department, Town Hall	3,744	
4	Aug. 29th	Winwick Pumping Station (after reservoir)	135	
5	,, ,,	Winwick Asylum (before entering softening plant)	129	
6	Oct. 9th	Delph Lane Pumping Station	9	Bacillus Coli Communis present in 100 C.C., absent in 90 C.C.
7	,, ,,	Winwick Pumping Station	5	Bacillus Coli Communis absent in 100 C.C.
8	,, ,,	Reservoir of Mixed Water...	66	Bacillus Coli Communis present in 60 C.C., absent in 50 C.C.
9	Nov. 14th	5, Greenbank Street	320	Colon Bacilli absent per 100 C.C. Bacillus enteritidis sporogenes absent.

11 samples of milk were submitted to bacteriological examination and 2 of these were found to contain tubercle bacilli.

10 specimens of blood, taken from suspected cases of typhoid fever, were examined: in 4 cases Widal's reaction was positive and in 6 cases negative.

138 swabs, taken from the throats either of suspected cases of diphtheria or of those who have been in contact with the disease, were examined: in 25 of these Diphtheria bacilli were found to be present.

HOSPITALS.

AIKIN STREET ISOLATION HOSPITAL.

		Recognized Accommodation.
WARDS.	Acute Scarlet Fever	24 beds.
	Convalescent Scarlet Fever	12 ,,
	Enteric Fever	12 ,,
	Diphtheria	4 ,,
Additional	Old Administrative Block will accommodate	16 —
	The Hut will accommodate	3 —

The hut, a relic of the Smallpox Epidemic of 1892, is used for the reception of Phthisis patients. Three patients can be received at a time, and the plan is to admit patients for short periods, teaching them how best to combat their disease and at the same time how to avoid infecting others.

SANKEY SANATORIUM FOR SMALLPOX.

The original plans are not completed, except as regards the Wards. The Administrative Block is not yet built, nor the disinfecting apparatus installed.

		Recognized Accommodation.
WARDS.	(1) For Smallpox	12 beds.
	(2) For Separation of Doubtful Cases	4 ,,

There have been no cases treated at this hospital since September, 1905, and, as has been suggested in another place, it is much to be desired that these very excellent wards should, in the absence of Smallpox, be used for the accommodation of cases of Pulmonary Tuberculosis.

The following table is a Summary of the number of Patients and of the Diseases for which they were under treatment during 1907.

	From the Borough.	From Rural District.	From Newton Urban District.	From other Authorities.	Total.
1. Remaining in Hospital at the end of 1906	16	...	2	...	18
2. Admitted during 1907					
As Smallpox	...	...	...	...	...
,, Scarlet Fever	241	3	33	2	279
,, Enteric Fever	14	1	2	...	17
,, Diphtheria	43	3	16	...	62
,, Phthisis	10	...	...	...	10
,, Cerebro Spinal Fever ...	1	...	1	...	2
Under Treatment during 1907 ...	325	7	54	2	388
3. Deaths during 1907.					
Smallpox	...	...	...	...	...
Scarlet Fever	8	...	...	...	8
Enteric Fever	3	...	1	...	4
Diphtheria	7	...	2	...	9
Cerebro Spinal Fever... ...	1	...	1	...	2
Totals	19	...	4	...	23
4. In Hospital at the end of 1907	42	...	7	...	49

SECTION III.

SCHOOL HYGIENE.

As I have not yet had sufficient opportunity for becoming thoroughly familiar with the Elementary Schools of the Borough, I do not propose to report at any length on the subject at the present time. The more extensive work which is about to be carried out in connection with School Hygiene under the Education (Administrative Provisions) Act, 1907, will enable me to report more fully at the end of this year.

Considerable work in connection with school children has, however, been performed by the Staff of the Health Department during 1907. 2,588 children who had been reported by the Education Department as being absent from school on account of illness were visited by the Inspectors of the Health Department in order to make enquiries as to the nature of the illness and to see that a medical man (either a private practitioner or myself) visited all cases where there seemed to be a suspicion of notifiable infectious disease. An attempt was also made to obtain the proper isolation at their homes of cases of non-notifiable infectious disease, and contacts with these cases, if scholars, were reported to the Education Department with recommendations for their exclusion from school for certain periods.

During the latter part of the year I examined at my office all children notified as being absent from school suffering from sore throats before their return to school in order to detect as far as possible any unrecognized cases of scarlet fever or diphtheria.

In addition I have examined since September at the various schools 685 children who had been singled out by the teachers on account of some special defect. On the completion of the examination of the defective children at each school, a report as to the abnormal conditions which had been found to exist was sent to the Director of Education. The tabulated statement as regards these children is given in the appended table (these examinations were not completed till early in the present year).

The Health Department has continued to inform the Education Department of all cases of notifiable infectious disease amongst scholars, and of those school children who have been in contact with such cases, recommending for what period they should be excluded from school. As it is very desirable that children who have suffered from diphtheria, or who have been in contact with cases of the disease, should not be re-admitted to school until a bacteriological examination has failed to show the presence of the diphtheria bacilli in their throats, an attempt is now being made to examine bacteriologically the throats of all such children before their re-admission, excluding those children who are found to have the diphtheria bacilli in their throats until a further examination has proved to be negative.

Regular inspections of the sanitary arrangements of the schools have been carried out by the Inspectors of the Health Department.

List of Schools dealt with in consequence of outbreaks of Measles :—

School.	From	Until.	Number of scholars excluded.
Sankey Bridges Wesleyan	Jan. 9th	Feb. 4th	Whole School
St. Barnabas Infant School	,, 18th	,, 11th	,, ,,
Hamilton St. Infant School	,, 28th	,, 11th	54
Latchford R.C. Infant School	Feb. 8th	,, 25th	10
Latchford St. James's Infant School ...	,, 26th	Mar. 12th	49
Cairo Street Infant School	March 4th	„ 18th	58
Fairfield Infant School	,, 21st	April 8th	Whole School
Ellesmere Street Infant School	May 9th	May 27th	,, ,,
Beamont Council Infant School	,, 15th	June 3rd	,, ,,
Hamilton Street Infant School	July 4th	July 16th	44

Table showing the results of an Examination of School Children who were Reported by the Teachers of the various Elementary Schools of the Borough to be defective.

	Warrington British Mixed.	Cairo Street Infants.	Thewlis Street Infants.	Warrington Parochial Boys.	Warrington Parochial Infants.	Fairfield Upper Girls.	Fairfield Girls.	Fairfield Infants.	Grappenhall Road Council Infants.	Hamilton Street National Boys.	Hamilton Street National Girls.	Hamilton Street National Infants.	Heathside National Boys.	Heathside National Girls.	Heathside National Infants.	Ladies School of Industry (Girls).	Latchford National Mixed.	Latchford R. C.	Latchford St. James' Mixed.	Latchford St. James' Infants.	Sacred Heart Mixed.	Sacred Heart Infants.	St. Alban's R. C. Mixed.	St. Alban's R. C. Infants.	St. Ann's Senior Mixed.	St. Ann's Junior Mixed.	St. Ann's Infants.	St. Barnabas National Mixed.	St. Barnabas National Infants.	St. Benedict's R. C. Mixed.	St. Benedict's R. C. Infants.	St. Mary's R. C. Boys.	St. Mary's R. C. Girls.	St. Mary's R. C. Infants.	St. Peter's Infants.	Sankey Bridges Council Infants.	Silver Street Wesleyan Mixed and Infants.	Trinity National Mixed.	Trinity National Infants.	Wycliffe British Mixed.	Wycliffe British Infants.	Beaumont Council School Boys.	Beaumont Council School Girls.	Beaumont Council School Infants.	TOTALS.
Children on the books	975	175	211	632	391	147	357	208	255	277	323	197	447	401	152	227	305	265	494	205	206	124	350	112	229	234	149	298	171	345	305	326	320	190	129	188	788	208	278	535	164	415	379	374	13,461
Reported by teachers as defective	13	10	11	51	29	9	22	12	14	5	23	12	32	33	11	69	7	33	43	14	19	19	19	3	46	9	4	55	22	25	3	8	10	15	17	6	11	26	5	10	25	44	24	14	892
Not attending the school at date of visit	—	1	3	1	3	—	—	3	—	—	1	—	4	1	1	6	—	4	3	—	1	—	—	1	11	—	—	7	2	1	—	—	—	1	—	—	—	—	1	—	—	4	4	4	68
Children not examined owing to parents objecting	1	6	1	4	2	2	2	1	—	—	—	1	—	3	—	3	—	—	4	1	—	—	—	—	4	—	—	—	2	2	1	—	1	—	—	—	—	1	—	1	—	2	1	2	48
Absent at time of my visit	2	—	—	5	3	1	1	1	3	—	—	1	—	3	—	12	1	5	5	2	2	1	1	—	10	2	1	1	3	4	1	—	1	3	1	2	—	2	1	—	4	3	—	3	91
Number examined	10	3	7	41	21	6	19	7	11	5	22	10	28	26	10	48	6	24	31	11	16	18	18	2	21	7	3	47	15	18	1	8	8	11	16	4	11	23	3	9	21	35	19	5	685
Recovered at time of examination	—	—	—	—	1	1	—	—	—	—	—	1	—	9	—	—	—	—	2	—	—	4	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	20
With defective vision	7	—	2	18	13	2	9	1	1	1	1	2	8	5	5	9	3	15	15	7	8	3	13	—	3	3	–	15	6	11	1	3	2	—	—	—	6	6	—	9	3	13	7	3	238
With sore eyelids	—	—	—	2	2	—	—	—	—	—	3	—	—	—	1	4	—	2	1	—	—	—	2	—	—	1	—	1	1	—	—	—	—	—	—	—	—	1	1	—	—	2	—	—	24
With deafness	1	—	—	2	—	—	3	—	2	2	1	—	11	—	—	—	—	1	3	—	2	—	—	—	—	1	—	7	1	—	—	—	—	—	—	—	—	10	—	—	7	7	—	—	61
With ear discharge	—	—	—	6	1	—	3	—	—	2	3	1	—	7	—	—	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	3	—	—	—	—	—	—	2	1	—	—	32
With mental deficiency	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1	3	3	3	—	3	2	—	—	—	—	3	2	—	—	3	5	1	—	2	—	1	1	—	4	1	2	—	43
With possible adenoids	—	—	3	—	—	—	1	—	3	—	1	—	—	2	1	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	15
With defective speech	—	2	—	—	—	—	—	1	3	—	—	—	—	1	1	1	—	2	—	—	—	1	1	1	—	—	—	...	—	—	—	1	—	—	—	1	—	—	—	—	—	—	1	—	17
Stammerers	—	—	—	1	—	—	1	—	1	—	—	—	5	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	2	2	—	—	—	—	—	1	17
Deaf and Dumb	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Epileptic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
With lateral curvature of spine	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
With rupture	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Ill-nourished	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	3
With old hip disease	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2
With various minor ailments	—	—	2	4	1	1	—	—	2	1	—	—	1	1	2	3	—	—	—	—	1	—	—	—	3	1	—	2	1	2	—	2	—	—	—	—	—	—	1	—	1	—	3	—	35
With deformities	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Suffering from paralysis	—	—	—	—	—	1	1	1	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
With no evident defect	2	—	—	5	2	1	2	5	1	—	12	6	3	1	1	30	1	5	5	—	4	6	3	—	13	1	3	20	4	5	—	—	1	7	14	1	3	5	—	—	6	12	5	1	196

Note.—Some of the children were suffering from two or more defects and are recorded above under each heading referring to the defects in question.

SECTION IV.

THE WORK OF THE FEMALE INSPECTOR.

During the year there has been only one Lady Inspector, who has not only performed the duties of Inspector of Midwives and Health Visitor, but has also for the greater part of the year dealt with the school work, which consists chiefly in visiting the homes of those children who are reported by the Education Department to be absent from school on account of illness. On Miss Hoyle's resignation in November this work was handed over to the Male Sanitary Inspectors.

Miss Hoyle's place has been filled by the appointment in the month of December of Miss Pakes.

Even when relieved of the school work one Lady Inspector cannot be expected to thoroughly supervise the Midwives and also to pay adequate attention to the subject of Infantile Mortality. It will be seen that only 51 new-born babies were visited during the year, and, as a matter of fact, until some method is adopted of obtaining an early notification of births, little in this way can be done on behalf of the new-born baby.

As regards the work under the Midwives Act, much has been done; but it is intended to prosecute this work more fully, and not only to keep the midwives under close supervision, but also to try and educate them by lectures and otherwise, so that they in their turn may be able to give sound advice to the mothers how best to prepare themselves for motherhood and tend their offspring. It is hoped that as a result of this instruction breast feeding of infants may become the rule and that the present ignorance as to the proper care of infants rectified. If the co-operation of well-trained midwives can only be obtained, much help will then be available in dealing with the subject of Infantile Mortality.

The following visits were paid to the homes of school children who have been notified by the Education Department to be absent from school on account of illness.

Number of enquiry visits with regard to:—

Measles	489
Whooping Cough	53
Ringworm	274
Mumps	78
Chickenpox	76
Dirty Heads, &c.	176
Ophthalmia	182
Sore throats	40
Other ailments	108
Re-visits	147
	1623

Number of Notices sent to Day and Sunday Schools	929
,, ,, Visits to Houses where there have been deaths of infants	73
,, ,, Visits to Houses where there were new-born babies	51
,, ,, Houses visited under the Public Health Act	168
,, ,, References to Inspector of Nuisances	19

WORK UNDER MIDWIVES ACT.

Enquiries concerning still births	20
,, ,, cases of puerperal fever	4
,, (General)	14
Number of visits of Midwives	99
Number of Notices received from Midwives of sending for medical help	178
Number of notifications by Midwives of deaths of children before the attendance of a doctor	13

SECTION V.

GENERAL SANITARY ADMINISTRATION.

HOUSING OF THE WORKING CLASSES ACTS, 1890-1903.

During the month of October the Inspectors took a census of the population living in what may be called slum dwellings; *i.e.* dwellings which open into courts or which are so situated in back and badly ventilated streets as to be under similar insanitary conditions. The vital statistics for the 12 months, November, 1906, to October, 1907, were then calculated for this population and are given below. The Mortality rates are seen to be very high; but it must be remembered that these dwellings are occupied by the poorest and often the most intemperate part of the population of the Borough. These dwellings are the remains of a much larger slum area, which is the usual heritage of an old town, and are being gradually dealt with under the Housing of the Working Classes Acts.

	Whole Borough.	Slums.
Number of Houses (total)	14,049	425
,, ,, without through Ventilation	—	236
,, ,, with only one entrance but through Ventilation	—	56
Population	71,849	1316 (64 under 1 year)
Birth Rate per 1,000 population	32·7	54·7
Death ,, ,, ,,	15·7	53·1
Zymotic Death Rate per 1,000 population	2·1	7·6
Infantile ,, ,, 1,000 Births	122	263
Diarrhœa ,, Children under 1 year per 1,000 Births	16·9	27·7

During the year 1907 the following houses were condemned under the above Acts as unfit for human habitation:—

2, Culms Yard, closed by owner.
4, ,, ,, ,,
6, ,, ,, ,,
36A, Cockhedge Lane ,, ,,
19, Dolmans Lane } Premises made habitable.
19A, ,, }
42, James Street, closed by Magistrates' Order.
44, ,, ,, ,, ,,

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK.

1.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories (including Factory Laundries)...	158	10	...
Workshops (including Workshop Laundries)	440	1	...
Workplaces (other than Outworkers' premises included in Part 3 of this Report)...	139	2	..
Total	737	13	...

2.—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M Inspect'r	
NUISANCES UNDER THE PUBLIC HEALTH ACTS: *				
Want of cleanliness	2	2	...	...
Want of ventilation	...	...	...	...
Overcrowding	..	...	...	...
Want of drainage of floors	...	...	...	...
Other nuisances	8	8	...	...
Sanitary accommodation insufficient	2	2	...	...
unsuitable or defective	18	18	...	...
not separate for sexes	...	...	...	...
OFFENCES UNDER THE FACTORY AND WORKSHOP ACT:				
Illegal occupation of underground bakehouse (S. 101)	1	...	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100)... ...	...	...	...	...
Other offences ... ... (Excluding offences relating to outwork which are included in Part 3 of this Report	...	...	...	...
Total	31	30	...	...

---

* Including those specified in Sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† For districts not in London state here whether section 22 of the Public Health Acts Amendment Act, 1890, has been adopted by the District Council; and if so what standard of sufficiency and suitability of sanitary accommodation for persons employed in factories and workshops has been enforced.

3.—HOMEWORK.

Outworkers Lists (Section 107) :—	Wearing Apparel.	File Making.
Lists received from Employers twice in the year		
Lists	2	2
Outworkers ...	6	48
Lists received from Employers once in the year.		
Lists	6	1
Outworkers ...	29	9
Numbers of Addresses of Outworkers received from other Councils ...	1	...
Numbers of Addresses of Outworkers forwarded to other Councils ...	4	35
Number of Inspections of Outworkers Premises	28	...

4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year :—	
Important classes of workshops, such as workshop bake-houses, may be enumerated here.	
Bakehouses	44
Boot Repairers	2
Cloggers	10
Dressmakers	35
Milliners	12
Tailors	15
Others	47
Total number of workshops on Register ...	195

5.—*OTHER MATTERS.*

Class.		Number.
Matters notified to H.M. Inspectors of Factories:—		
Failure to affix Abstract of the Factory and Workshop Act (S. 133)		...
Action taken in matters referred by H M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5)	Notified by H.M. Inspector	2
	Reports (of action taken) sent to H.M. Inspector ..	2
Other		...
Underground Bakehouses (S. 101):—		
Certificates granted during the year		...
In use at the end of the year		1

COUNTY BOROUGH OF WARRINGTON.

THE

Sanitary Inspector's Report

FOR THE

YEAR ENDING 31st DECEMBER, 1907.

To the Chairman and Members of the Health Committee.

GENTLEMEN,

I have the pleasure to submit for your consideration my Seventh Annual Report for the year ending 31st December, 1907.

Town Hall, Warrington.

SUMMARY OF NUISANCES DEALT WITH DURING THE YEAR 1907.

The following Table shows the nature and number of nuisances registered and dealt with during the year:—

Overcrowded houses	7
Inadequate ventilation	17
Dirty dwellings (fault of occupier)	3
Defective floors	49
,, walls and ceilings	30
,, roofs	107
,, spouting	366
,, slopstones and pipes	50

Want of slopstones and pipes	5
Untrapped drains	14
Blocked drains	488
Defective drains	57
Defective pavement in yards and passages	102
Damp basements	19
Pools of stagnant water	10
Defective pail closets and ashplaces	238
,, water-closets	19
,, midden closets (converted to pail closets)	4
Insufficient sanitary conveniences	4
Poultry kept so as to be a nuisance	7
Accumulations of manure	9
,, ,, refuse	13
Dirty Walls of passages and yards	209
Miscellaneous	38
Total	1865

Nuisances reported by Inspectors	1817
,, ,, Inhabitants	48
,, removed or abated	1818
,, reported, which were unabated at end of 1907	47
Preliminary Notices sent calling attention to nuisances	504
Legal Notices served to abate nuisances	433

INFECTIOUS DISEASES.

1467 visits were paid by the Inspectors to houses where cases of infectious disease occurred, to make such enquiries as might be necessary with a view to ascertaining the cause of the disease, to give advice or caution so as to prevent the spread of infection, and to make an inspection as to the sanitary condition of the premises.

Attention was also paid to the disinfecting of the premises, bedding and clothing, and also to the cleansing and stripping of the walls where necessary.

All such information was submitted to the Medical Officer of Health, and the matters contained therein dealt with according to his instructions.

DISINFECTION.

Month.	Number of Houses.	Number of Articles.
1907—January	28	253
February	21	131
March	20	198
April	14	159
May	39	638
June	14	173
July	47	647
August	61	902
September	75	1,059
October	54	699
November	53	812
December	33	457
Total	459	6,128

Number of houses cleansed and limewashed after Infectious Disease 77

SMOKE OBSERVATION.

54 observations, each extending over a period of 30 minutes, have been taken during the year. 19 cases where black smoke was emitted from the chimneys for more than three minutes out of the thirty minutes, were reported to the Committee, who instructed me to obtain information as to the time limit in force in other towns, and to take a series of observations from chimneys in our own town with a view to ascertaining whether the time limit in force in this Borough is a reasonable one.

SALE OF FOOD AND DRUGS ACTS.

Under these Acts 185 samples of food were obtained and submitted to the Public Analyst. The result of the analyses and report of proceedings taken will be found in a special report by the Public Analyst.

BAKEHOUSES.

220 Visits have been paid to the 51 Bakehouses which are in use within the Borough. The sanitary control of the Bakehouses is carried on under the Public Health Acts and the Factory and Workshops Acts.

COWSHEDS AND MILKSHOPS.

There are 79 Milkshops and 13 Registered Cowsheds within the Borough. 308 inspections have been made of the Milkshops, and 53 inspections of the Cowsheds and Cattle kept therein. Nine persons were registered to sell milk on premises where milk had not been previously sold during the year: five registered persons ceased to sell milk.

COMMON LODGING-HOUSES.

There are 33 Common Lodging-houses within the Borough registered to accommodate 685 persons: 309 visits have been paid to them, and a strict watch kept over travellers lodging therein with a view to preventing the spread of infectious diseases, to see that there was no overcrowding and that the requirements of the byelaws were carried out. No cases of infectious sickness have been reported at registered Common Lodging-houses during the year.

HOUSES LET IN LODGINGS.

There are 43 houses within the Borough registered as above: 51 visits have been paid to them. The number of houses registered under the above heading have gradually diminished during the last ten years. As there are plenty of empty houses within the Borough, the practice of allowing two families to occupy one house has been prevented as far as possible.

CANAL BOATS.

76 Canal Boats which were berthed on the River Mersey were inspected during the year. They were registered to accommodate 428 persons, but only 167 persons occupied them, viz.: 153 males, 7 females, and 7 children. One Case of Diphtheria was dealt with. The patient was removed to the Hospital and the boat afterwards disinfected.

SLAUGHTER-HOUSES.

There are 19 Slaughter-houses within the Borough. During the year 1,210 inspections have been made of them. A report upon the sanitary condition of each Slaughter-house has been made and submitted to the Committee. A Special Sub-Committee has been appointed to deal with the matter, and to ascertain the necessity or otherwise of establishing a Public Abattoir.

UNWHOLESOME MEAT, FISH, ETC., DEALT WITH AND DESTROYED DURING THE YEAR.

Class of Articles.	Quantity.	No. of Persons dealt with by Committee.
BEEF	13658lbs.	2
MUTTON	61lbs.	...
PORK	502lbs.	...
FISH	5605lbs.	...
RABBITS	213lbs.	...
TRIPE	28lbs.	...
OFFALS	1883lbs.	...
	Total 21950lbs.	2

Eleven Carcases of the above meat were surrendered by the Owners in consequence of the animals having been affected with Tuberculosis.

REFERENCES TO OTHER DEPARTMENTS.

Referred to Borough Surveyor	51
,, ,, Water Engineer	34
,, ,, Sanitary Superintendent	132

The references to the Borough Surveyor comprise blocked drains and defective pavement in streets and back passages.

The references to the Water Engineer are mainly defective fittings resulting in waste of water.

Those made to the Sanitary Superintendent are for want of ashtubs and pails, defective ashtubs or leaking pails, or the non-removal of house refuse.

CONTAGIOUS DISEASES (ANIMALS) ACTS AND ORDERS OF THE BOARD OF AGRICULTURE.

Seven suspected cases of Swine Fever were reported to the Board of Agriculture during the year. The Board's Veterinary

Inspector made enquiries into each case and upon his reports the Board stated that Swine Fever did exist in two of the cases.

The Swine Fever (Regulation of Movement) Order of 1903 has been in force by order of the Board of Agriculture since the 14th March, 1906. Under this order Cumberland, Lancashire and Westmorland are classed as one Scheduled Area, and within these three counties swine may be moved without a licence. Swine coming into this Area from any other county must be accompanied by a licence which will be granted by the Inspector of the district into which the same are to be moved on the production of a declaration signed by the owner of the pigs and countersigned by the Police Officer of the district where the pigs had been kept for the last 28 days.

SHEEP DIPPING (NORTH OF ENGLAND) ORDER, 1906.

Warrington is within the Area scheduled under this Order, but few if any store sheep are kept within this Borough, therefore the only persons affected are the owners of sheep who send animals to the weekly sales. These sheep have to be dipped within the time specified in the Order, and a declaration produced signed by the owner stating that the Order has been complied with before the sheep can be offered for sale.

SUMMARY.

Workshops within the Borough	... ...	440
Bakehouses ,, ,,	... ..	51
Slaughter-houses ,, ,,	... ...	19
Milkshops ,, ,,	... ...	79
Cowsheds ,, ,,	... ...	13
Common Lodging-houses ,,	... ...	33
Houses Let in Lodgings ,,	... ...	43
Tripe Boilers ,,	... .	4
Knackers Yard ,,	... ...	1

In conclusion my thanks are again due to the District Inspectors and Clerks for their valuable help in carrying out the work of the Department which is constantly on the increase.

Their ready response to perform any duty devolving upon them is both gratifying and worthy of mention.

WALTER T. FLOOD,

Chief Inspector of Nuisances.

COUNTY BOROUGH OF WARRINGTON.

REPORT

OF THE

PUBLIC ANALYST

FOR THE

Year ending 30th December, 1907.

WARRINGTON:
Mackie & Co. Ld., Guardian Office.

Laboratory and Assay Office,
Corporation Street Chambers,
Warrington.

29th January, 1908.

TO THE CHAIRMAN AND MEMBERS
OF THE HEALTH COMMITTEE.

Gentlemen,

I have pleasure in submitting to you my report on the work done by me as Public Analyst for the year 1907.

The illness and death of Dr. J. G. Gornall in the early part of the year threw a good deal of extra work on the officials of the Health Department, with the result that the Chief Inspector found it difficult to take samples systematically, as he had been accustomed to do, under the Food and Drugs Acts. This no doubt accounts for the smaller number of samples taken during the year. Dr. Gornall's death was a great loss to me personally; his singleness of purpose in promoting the health of the town caused him to take a great interest in the work of my department. I always found him ready to help with wise counsel and advice, and to discuss matters that came within our departments with insight and knowledge. Only those who came into very intimate relationship with Dr. Gornall could fully appreciate his unassuming and unselfish character, and the high conscientiousness that guided him in all he undertook.

During the year I have had submitted to me 185 samples; of these 180 were taken in the ordinary way under the Food and Drugs Acts, and 5 were taken informally. The latter comprised two samples of butter, one lard, one pearl barley, and one rice, all of which were genuine. The following table gives a summary of the samples analysed, the samples adulterated, the extent of the adulteration, and the action taken, from which it will be seen that 16 samples, or 8·65 per cent., have been reported against :—

	Examined.	Adulterated.	Extent of Adulteration and action taken.
Milk	78	7	No. 149. 6% water added. Warned by letter. No. 156. 14% water added. No. 157. 10% water added. Same farmer, and both coloured with annatto. Action taken on 157. Farmer fined 20/- and costs. No. 178. 5% water added. Warned by letter. No. 181. Cream reduced 2% No. 186. Cream reduced 1% Same farmer warned by letter. No. 296. Cream reduced 8% Warned by letter.
Condensed Milk...	1		
Cream	2	1	16 grains Boric Acid per lb. No action.
Butter	28	1	87% Margarine. Fined 10/- and costs.
Cheese...	4	2	No. 128. 31% deficient in fat. No. 202. 38% deficient in fat.
Margarine	1		
Lard	1		
Flour	2		
Coffee	5		
Sugar	5		
Golden Syrup ...	1		
Jam and confectionery ...	7		
Pepper...	3		
Mustard	1		
Beer	25		
Sausages	1		
Potted Shrimps ...	1		
Carried forward ...	166	11	

	Examined.	Adulterated.	Extent of Adulteration and action taken.
Brought forward...	166	11	
Potted Lobster ...	5	5	Boric Acid present in all 53, 55, 38, 46, 46 grains per lb., and all coloured with pink Aniline dye. Sale stopped.
Potted Meats ...	2		
Pearl Barley ...	6		
Ground Rice ...	1		
Baking Powder ...	2		
Glycerine	1		
Blanc Mange Powder	1		
Sauce	1		
	185	16	=8·65 per cent.

The samples examined and the number of adulterated samples is shown by the following figures for the last three years :—

	1905.	1906.	1907.
Samples analysed	207	201	185
Adulterated samples	21	19	16
Adulterated samples, per cent......	10·14	9·45	8·65

In Warrington 2·57 samples were taken for every thousand persons, or one sample for every 389 persons; this is somewhat below the average for the whole country, which in 1906 was one sample for every 359 persons. In London the administration of the Act is still carried on with greater energy than in any other part of the country, one sample being taken for every 203 persons, or 4·9 samples for every thousand of the population. In 1906, in Warrington, 9·4 per cent. of the samples were adulterated, and for the whole country 9·3 per cent.; in Warrington this figure fell to 8·6 per cent. last year. It is many years since the rate of adulteration in this country has been above 9 per cent.

The greatest number of samples taken are of dairy produce—out of a total of 90,504 samples taken in 1906, no less than 59,326 were samples of milk and butter, and of these 12·5 per cent. of the milk, and 7·4 per cent. of the butter samples were condemned; or taking milk, butter and cheese together, 10·7 per cent. were reported against. All other samples taken together show an adulteration of 6·5 per cent. In Warrington last year 9·7 per cent. of the samples of dairy produce, and 6·9 per cent. of all other samples, were condemned.

MILK.

Board of Agriculture's minimum limits—Fat 3 per cent., Solids not fat 8·5 per cent.

During the year seven samples have been reported against, all of which have been further investigated by following up the milk to the farm as soon as possible.

No. 149. The following are the results of the analysis of this sample, together with the further samples taken for investigation :—

	149. March 6th.		Taken from farmer's cart. March 8th.		Taken at farm March 9th.
Non-fatty solids	8·2	...	8·4	...	8·68 to 8·78 per cent.

Compared with the official standard these figures show that between 3 and 4 per cent. water had been added by the farmer, or compared with the milk the cows were giving 6 per cent. water had been added. This quantity of water did not reduce the fat below 3 per cent., and therefore no action was taken except to warn the farmer by letter.

Nos. 156 and 157.—These were rich looking samples of milk, but on analysis were found to be watered and coloured with annatto :—

	156. March 13th.		157. March 14th.		Taken at farm. March 15th.
Fat	3·26	...	2·84	...	3·05 to 3·63 per cent.
Non-fatty solids	7·42	...	7·74	...	8·75 to 9·09 per cent.

These figures show that water had been added to both 156 and 157 in the proportion of 19 and 14½ per cent. respectively, or if the standard of 8·5 is taken 14 and 10 per cent. ; in this case again the farmer himself was adulterating the milk, and not the dealer ; he pleaded guilty and was fined.

No. 178. As in the previous cases water had been added to this sample by the farmer, the non-fatty solids being only 8·06 per cent., whereas the farm milk contained 8·8 and 8·9 per cent., showing the milk to be adulterated with 9 per cent. of water. The fat was 3·5 per cent., and no action was taken further than warning the farmer, who was his own distributor, by letter.

Nos. 181 and 186. Both these came from the same farm, the fat being slightly below the minimum, 2 and 1 per cent. respectively ; the samples taken from the cart and farm however contained 3·36 and 3·65 per cent. fat, and taking these figures the cream had been reduced by about 12 and 18 per cent. respectively.

No. 296. The fat was only 2·75 per cent., and the farm milk varied from 2·91 to 3·94 with an average of 3·45 per cent. It appeared possible that the fault here was with the farmer in not mixing his milk, and he was warned to that effect.

Out of the 7 samples of milk reported against, 4 were adulterated with water, and of these 3 had had water added in quantity not sufficient to reduce the fat below 3 per cent., and no legal action was taken. The average fat in genuine milk is about 3·7 per cent. It will therefore be seen that a dishonest milk dealer or farmer can add 19 per cent. water to such a milk without reducing the fat below the legal limit. So long as the present system continues of considering the fat the only important constituent, and taking no action unless it is reduced below 3 per cent., there is a great temptation to this form of adulteration; the other constituents are just as important in their way as fat, and a legal limit has also been fixed for them. In my opinion there is a source of great danger in adding the smallest quantity of impure water to milk, and I would impress upon the Health Authorities the great importance of insisting that milk be sold just as it is given by the cow without any adulteration whatever.

The average quality of the milk supply of the town has been about the same as the previous year, as shown by the following figures:—

	1904.	1905.	1906.	1907.
Number of Samples	75	69	72	78
Average Fat, per cent	3·47	3·57	3·66	3·65
Adulterated Samples, per cent	9·3	5·6	2.7	9·0

But the general quality of the milk has really been richer:—

	1904.	1905.	1906.	1907.	
Number of samples below 3 per cent. fat	12·2	9·1	4·4	5·1	per cent.
Number of samples between 3·0 and 3·2 per cent. fat	10·8	12·1	5·9	2.6	per cent.
Number of samples between 3·2 and 3·5 per cent. fat	43·2	31·8	26·5	21·8	per cent.
Number of samples between 3·5 and 4·0 per cent. fat	17·6	28·8	47·0	52·6	per cent.
Number of samples above 4 per cent. fat	16·2	18·2	16·2	17·9	per cent.

The greater number of adulterated samples brings down the average, but there has been a larger number of samples containing above 3·5 per cent. fat—70·5 per cent. against 63·2 in 1906, and only 33.8 in 1904.

BUTTER.

Comparatively few samples of butter were taken, 28 as compared with 52 in 1906, and 59 in 1905; there was one prosecution for selling margarine as butter. None of the samples contained over the limit of 16 per cent. water. One sample on analysis showed the presence of 20 per cent. margarine ; on investigation this sample was proved to be Siberian butter sent from Omsk on October 24th. I was then requested by the dealers to take samples at the Docks in London from a large consignment of Siberian butter sent from Siberia in November. I took 13 samples, and of these one was abnormal resembling the sample in question. The contention of the importers was that under exceptional conditions such as are present in Siberia, where cows are sometimes kept out late in Autumn, and where milk is sterilized, in order that it may be carried considerable distances, a butter is at times produced which is abnormal, one that gives the same figures on analysis as an ordinary sample of butter mixed with 10 to 20 per cent. margarine. Under these circumstances no further action was taken.

CHEESE.

There seems to be an increasing practice of making cheese from partially skimmed milk and selling it heavily weighted with water. Out of 4 samples submitted to me two contained 56 and 54 per cent. water and only 10·9 and 9·9 per cent. fat. Cheese made from whole milk contains 25 to 35 per cent. water, and 25 to 40 per cent. fat. That the cheese is made from partially skimmed milk is shown by the fact that the casein present is of normal amount, about 27 per cent. No action is taken in these cases because no standard has been fixed for the composition of cheese.

BEER.

Of the 25 samples examined, 10 were taken in January and 15 in December ; they were therefore made, presumably, from 1906 and 1907 malt. In two cases the beer was absolutely free from arsenic, but in all the other samples slight traces were present up to ·005 of a grain per gallon. This is only a minute quantity and is harmless. My object in mentioning it is to point out that the raw materials used in brewing are not as free from arsenic as they were immediately after the arsenic scare, and that it is as well for brewers to watch this carefully.

POTTED MEATS, PRESERVATIVES AND COLOURING MATTERS.

Of the 8 samples of potted meats submitted to me, 5 samples of potted lobster contained considerable quantities of Boric Acid and were also coloured with a pink Aniline dye. On communicating with the dealers they refused to continue selling this lobster, which the manufacturers replaced with lobster free from preservatives, in hermetically sealed glass vessels.

The action taken by the Corporation in 1906 in instituting a prosecution for the presence of Salicylic Acid in jam, which attained wide publicity, appears to have done a considerable amount of good. Whereas 3 to 4 grains per lb. was commonly met with previous to 1907, of the 7 samples examined last year 4 were free and 3 contained Salicylic Acid in quantities from ½ to 1 grain per lb., and it is a well known fact that many of the best known makers do not now use any kind of preservative. This is a step in the right direction, for jam without preservatives must be made carefully, and with sound fruit.

Of other samples examined both samples of cream contained Boric Acid 11·5 and 16 grains per lb., and the sample of margarine contained 12 grains per lb. Colouring matters were present in two samples milk and 5 samples lobster.

It is interesting to note that after the protestations of the Corporation some 2 or 3 years ago against the facing of pearl barley, rice and lentils with kaolin, or other earthy matter, the practice appears to have been stopped, for out of 6 samples of pearl barley none were faced with earthy matter.

None of the samples of milk or butter contained preservatives.

No samples of spirits or drugs were submitted to me.

I remain,

Mr. Chairman and Gentlemen,

Yours faithfully,

FREDK. G. RUDDOCK, F.I.C.

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